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BRICK
and CLAY RECORD

Brick Established 1894

Clay Record Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

OPTIMISM jingles through the veins of every business man in the country. Those that make a pretense of being able to pierce through the hazy curtains of the Future see a great prosperity in the country during 1914 and the clayworker expects to ride in on the crest.

Nineteen-thirteen was generous to the clayworker—better, perhaps, than for some of the other fellows, and there is every promise that it will be still better in 1914.

And the clayworker DESERVES it—every whit. He has thrown aside the eye-blinders of antiquated methods—he has cast aside the gum shoes of old-fogyism—and he has stepped out in the light of up-to-date promotion work, and he has worked and he has played the game hard and square.

If there is any Prosperity hanging around loose or even hidden away in the darkness of timidity, he WANTS it—he should have it and he IS going to have it.

The year 1913 started out well for the clayworker and the rest of the world. There was every indication that the business men of the Nation had determined to try new tactics in the big game they played.

Then came a new administration and the Chief Executive soon got the confidence of the leaders and he told them HIS plans and they told him what THEY thought the country NEEDED, and through this interchange of ideas a tariff law was framed, and a currency bill was built up and the Nation sat back and waited to see what the legislators would do with them.

It was in this period of expectant waiting that things took a doubtful turn.

The banks had lots of money—just oodles of it, but they wanted to be sure what was going to be done with that currency bill.

And, without money—for the banks kept their word and held a taut hand on the purse strings, the business interests had to suffer a little.

Five years ago there would have been a panic, but the temper of the world is DIFFERENT today.

Business just waited and the Monied Interests just waited—and then the currency bill, after it had received its pruning and its trimming, went sailing through Congress and it is a law.

Business breathes easier because the Monied Interests and the banks have promised to loosen up and there is going to be real good times.

Interviews with bankers and financial men disclose the greatest confidence in the new currency law. "It means an end to the panic," they tell you and they explain the "Elastic Currency" feature and you begin to feel it yourself.

It is a fact, however, that there never was a time in the history of the United States where there was such a unity of belief in an approaching prosperity.

The Pessimist seems to have retired. Born and rocked in the Cradle of Despondency and reared on the Bottle of Hypochondria, he has thrived so long as there was someone around to keep his sub-conscious mind fed with a plentiful supply of Low Spirits.

But the Pessimist cannot thrive without his brain food and so he is passing away and where there is one Pess today there are three million Optimists.

Business is undergoing a change. It is passing through a revolution. Men are becoming conservative. They are figuring the problem of existence with the Pencil of Sanity.

And the clayworker—just a breath or so ago but a poor follower, is becoming a LEADER. He is taking the INITIATIVE. He is reaching out and claiming his own.

And 1913 shows it. And 1914 is going to show some more of it.

Turn, Good Reader, to the succeeding pages and read the encouraging reports given therein in the review of the year in the clay product field.

It is going to be a great year—1914 is, and it will be great because we WILL it so and WANT it to be so.

Here's wishing you all the GOOD things you deserve!

v.44

ONCE in a great while geniuses do something truly great. Occasionally there is an exception. J. Paulding, the sculptor and clay modeler, seems to be one of these rare exceptions. He seems to make a ten-strike every time he tries. Mr. Paulding, as most of our readers are aware, designs the special cover pictures that grace the Annual Review Numbers of "Brick and Clay Record." If you will look over your files you will find that he seldom fails to give us a striking cover.

But even Paulding does just a little bit better occasionally than some previous effort.

Two years ago he drew a cover design that was pronounced one of the very best things an artist ever accomplished in presenting a convincing argument for burned clay.

This cover was modeled in clay, as all of his work is, and it showed a HARD-burned brick as the CENTRAL idea, which, the average artist says, is a HARD thing to adapt to an artistic treatment.

But Paulding is not an AVERAGE artist, so he got the artistic treatment.

Surrounding the hard-burned brick were four symbolic figures. One represented Father Time with his hour glass and his scythe. Another Fire with his brand of flame. Another Flood with her vessel of water, and still another Frost, with his destructive talons of ice.

These figures were full of action—something which all artists strive to get and few succeed in doing, for they were turning their weapons on the HARD-burned brick and they were fighting hard to make an IMPRESSION on it.

Underneath—in unobtrusive fashion—was this caption:

"By Frost, nor Fire, nor Flood, nor Even Time, are Well-Burned Clays Destroyed."

Nothing ever drawn by artist or impressed by printer ever struck the clayworker so hard as that cover design.

Appeals came from all over the land for reproductions. We had anticipated some of this interest and, using the same plates, printed a handsome calendar which was given to those that asked for it.

But this did not satisfy the interest and even today appeals are not uncommon.

And many clayworkers have procured smaller cuts or reproductions from this journal and have used them on their letter heads and printed them on their literature.

When Mr. Paulding was approached for a new design this year he was asked if he could not give us another truly GREAT idea.

He said he would try. We believe he has succeeded, but the only proof of that judgment is in how YOU—the clayworker—receives it.

The picture speaks for itself. Like the former, there is little need of explanation. GREAT pictures do not have to be labeled.

Note the magnificent figure of the clayworker. Does it not embody all that represents STRENGTH and POWER?

And the four destructive elements of Nature—note what has happened to them since they started out to tear down the results of his labors.

We cannot refrain from adding just this one comment:

You clayworkers—do you not see the significance of the picture?

In the STRENGTH of organized effort—in the POWER of Unity—in the PERFECT product of your labors—lies your success in PUTTING TO ROUT YOUR NATURAL FOES, whether they are the elements of Nature or Concrete or Wood.

Ask Us a Hard Question—
Experts Will Answer It

Is there some problem about your plant you are having trouble getting a satisfactory solution to? Does your clay work contrary-like—your kiln burn erratic—your dryer crack your ware? No matter what the trouble ask "Brick and Clay Record" experts—they will show show you a way out of the difficulty.

395345

Clay Products Show

Brick and Clay Record Reports Indicate

Optimistic Estimates are Based on Figures Obtained by Staff Correspondents and Those in Comparison With Last Government Census

ESTIMATES, based on painstaking investigations by staff correspondents of "Brick and Clay Record" in every section of the United States, and on signed statements by manufacturers in every branch of the business, indicate that the clay product industry in the year just closed showed a healthy increase over 1912 when the United States Government reports placed the figures at more than $10,000,000 in excess of 1911.

Comparing the figures now at hand, and which are fully as accurate as those obtained by the Government census takers, with the last report of the Geographical Survey, "Brick and Clay Record" believes it would be a conservative statement to say that 1913 will show close to a gain of $12,000,000 over 1912 and this in the face of the fact that all building and construction work was severely crippled by the attitude of capital the closing months of the year, while waiting for the National Congress to settle the currency and other questions.

With the currency law passed to the satisfaction of the monied interests of the country and business in general showing a renewed activity, there is a most cheerful outlook—not only for the clayworker, but also for every producer in the Nation. Prominent business men, great capitalists, bankers and manufacturers predict a decidedly prosperous new year and preparations are being made to handle the prosperous conditions that appear to be inevitable.

Discouraging reports come from only four sections of the country among the clayworkers and these cases are isolated and result from local conditions.

Clayworkers in the State of Washington are in a chaotic condition and had a poor season, but no one is to be blamed for the unsatisfactory situation but the clay manufacturers, as they have spent most of their effort and energies in fighting among themselves. The demand has been good, as attest the wonderful showing made by the concrete men and even the lumber dealers, but the spirit of the clayworkers in that section appears to have been—"If I cannot get it I won't let the other fellow have it," and prices have been slashed right and left.

The Year 1913

It has been one of the best in the paving brick industry for years, every yard having been cleaned out before the close of the season.

It has been one of the best for all lines of clay products, except possibly building brick.

It has been one of the best for prices for years, with only a few exceptions in isolated sections where local conditions affected sales.

It has been one of the most active among the clay product associations and much practical work was done in the way of teaching the buying public HOW to use burned clay.

With a proper organization and a decision to step out in the broader paths of conservative, sane business, the Washington state clayworker should rejoice at the close of the coming year just as his fellow clayworkers in the rest of the land most surely will do.

From Indianapolis and most of Indiana come one of the other discouraging reports. Business was fair, on the average for the year, but not showing the same measure of increase as the rest of the country has. This is attributed to two causes—one that can be controlled in the future by the clayworkers themselves, and the other that is apt to come to all of us. The first was a lack of organization—a failure to realize the importance of unity of action and a solid fighting front to the natural foes. The other is attributed to two physical conditions that disrupted the entire business interests of Indianapolis and most of the state—the severe floods of last Spring and a protracted strike among the teamsters.

It is highly probable that without the strike, which demoralized all business for months, the state would have profited by the flood as did Ohio, which was a much heavier loser by the sudden rush of waters.

$12,000,000 Increase

Even Greater Prosperity During Coming Year

The Year 1914

It promises to be a truly prosperous year in all branches of the industry, particularly in paving brick and building brick.

It promises to bring better prices all along the line, as clayworkers have seen the foolhardiness of unfair competition.

It promises to be one of the most active in publicity matters and several of the larger concerns are planning individual campaigns.

It promises to be one of the most active among the clay product associations, a number taking the lesson taught them by the National Paving Brick Manufacturers' Association.

Leading Clayworkers, in Signed Statements, Tell of Faith in the Approach of One of the Most Profitable Seasons in History of Industry

AND, then came along the labor troubles and building and construction work was crippled severely.

The outlook in Indiana for 1914 is far more encouraging and with the proper display of organized effort the clayworkers in that state should enjoy a good season.

From Washington, the national capital, and Baltimore, the metropolis of Maryland, come one of the other unsatisfactory reports. Both of these cities, however, being under the shadow of the Capitol dome, are influenced more or less by legislative matters and there is nothing surprising in the statement that these two cities just about held their own.

The other pessimistic report comes from the Hudson Bay District, in New York. The season was fairly good, but rather disappointing in view of the encouraging start the year had. Wall street is too near the center of the clayworking trade in that state and until the financiers were satisfied that Congress would pass a satisfactory currency law they held a tight hand on the purse strings.

Mr. Beal's summing up of the situation is a remarkably clear one and no further comment is necessary here.

With these four exceptions—Indianapilis, Baltimore, New York and Washington state—the most encouraging reports come from the entire country and practically from every branch of the industry.

To the paving brick industry must be given the greatest showing of the year. Primarily the increased activity in good roads in nearly every state in the Union made this possible, but, without the perfect organizations among the manufacturers in the three sections of the country—the East, the Middle West and the Far West—brick would not have profited so well.

The National Paving Brick Manufacturers' Association, the parent body of the organizations that devote their energies to the vitrified paving block industry, was a most active agent all through the year, and to this great publicity bureau much of the credit must be given.

This does not mean, however, that the work of

Paradoxical as it may seem, the floods were a salvation to the Ohio clayworkers and disastrous to those in Indiana. The rebuilding of cities along fireproof and flood-proof lines and the reconstruction of the streets with permanent paving material was begun scarcely before the waters receded in Ohio. The business interests profited by the scenes of frail frame structures sweeping from their foundations and sailing off in the rush of the waters. They learned a bitter lesson from the fires that added to the destitution of the people. They took the hint from the up-rooted concrete, asphalt and wooden block streets, which the waters ploughed through as if they were of soft clay, while the vitrified brick paved streets were unaffected and stand today as monuments to their durability.

When Ohio started in to rebuild, brick manufacturers, tile manufacturers and the sewer pipe men got busy and with a united front pointed out the way.

In Indiana the reverse of this is true. There is no state organization that can take hold of a work of such magnitude and no serious effort was made to take advantage of the opportunities presented.

These Clayworkers Predict a Great Year Ahead

W. E. DUNWOODY
Standard Brick Co., Macon, Ga.

L. G. KILBOURNE
Columbus (O.) Brick and Terra Cotta Co.

J. PARKER B. FISKE
Fiske & Co., New York and Boston.

the other two organizations—the Eastern Paving Brick Manufacturers' Association and the Western Paving Brick Manufacturers' Association—is to be discredited one whit. Both of these bodies were active agents in the territories in which they work, and whatever measure of success the producers of vitrified block had there is to be attributed to them.

Elsewhere in this issue considerable space is devoted to these associations, as well as to all others in the various branches of the industry.

Reports from the paving brick plants show that practically every one had cleaned yards with many holdover orders for next season. As a fact, it is doubtful if there are but a handful of No. 1 block left on any yard.

The face brick manufacturers were a very optimistic crowd when the season closed, as with but few exceptions most localities had a good season with better prices prevailing.

This is also true in drain tile, sewer pipe, pottery, common brick, hollow block, architectural terra cotta and the minor industries.

In some states lack of rain affected the tile makers, but in others the heavy floods of the early part of the year made business good. As a whole the industry showed a decidedly healthy tone and with a reasonably fair season of weather in 1914 this branch of the industry is going to feel its best year.

Remarkable strides were made during the year in the hollow block industry. While building operations were not any greater than previous years, there seemed to be a tendency to use this class of burned clay more. This was due to the publicity methods displayed, probably, which goes to show that a liberal application of printer's ink is the salvation of the clayworker.

One of the best signs in the industry is the better prices that prevailed all along the line. With a fair demand and a more satisfactory price it is no wonder that the 1913 clayworker wears a smile and that he is going into 1914 with one of the most cheerful looks on his face he has ever faced the new year with.

With this brief summary of the conditions, "Brick and Clay Record" refers you to the optimistic reports it has gathered and the careful analysis presented in these reports of the actual situation the past year and the hopeful tone of the forecast.

Currency Law Gives Hope to Brickmakers in New York

By **ALLEN E. BEALS.**

Staff Correspondent "Brick and Clay Record."

One dark day during the panic of 1893 one of the Goulds dropped into the office of the late J. Pierpont Morgan down in the hive of the country's financial interests, and said:

"Morgan, the bottom has dropped out of everything. N. Y. C. has dropped way out of sight and the 'Floor' is crazy. You are about the only one who can save the situation, but you have got to act quickly if you're going to accomplish anything."

Black Friday is still remembered as the hideous monument reared to the memory of an inadequate monetary system that endured until the nineteenth day of December in the year of our Lord, one thousand, nine hundred and thirteen when the currency bill, long needed, but often only dallied with, passed the Senate milestone on the way of the Nation's statute books via the President's desk and finally received the signature of the Chief Executive.

Morgan, with others, did act quickly. The rush to a country-

WILLIAM SCHLAKE,
Illinois Brick Co., Chicago.

E. C. KIMBELL,
Chicago Brick Dealer.

W. P. VARNEY,
Hydraulic Press Brick Co., Chicago.

wide bankruptcy was checked, and then came years upon years of tireless upbuilding until five years ago when the country again back-slid to the financial toboggan for a ride to a killing. Once again a few giants of finance came to the slide and banked the turns, as it were, and then turned their attention to the task of sanding the track. The remedy was only temporary. Water in time will even freeze over sand for tobogganing purposes and during the year that has just closed some of the sand applied in 1907 by the country's financial kings showed signs of again assuming a glaced surface.

In times like these Wall street's temperament has a very close reaction upon the welfare of the burned clay industry, as well as in others, but since the clay industry is so closely identified with the prosperity of the Nation it naturally is the first to feel the effects of a depression and is about the last to recover. If investors cannot turn their money over quickly building construction is halted. Investors, being the first victims of the foibles of an insecure monetary system that had its rises and its reactions according to the general thrift or spendthrift proclivities of the people, were, to say the least, insecure and unreliable as a collective foundation for an industry as vast and important to the general weal as that of burned clay.

What business in general and the burned clay industry in particular needed was a guarantee backed up by our Uncle Samuel that he would do the sanding hereafter—instead of a few money kings—when the toboggan iced over, and that instead of sapping good wholesome interest-rates that the people themselves ultimately had to pay for their little periodical obstreperousnesses, he would guarantee stability himself. But it seemed a dream allied to the millenium and, consequently, never to be realized.

The best kind of Christmas presents are those that are entirely unexpected and when the clay products industry opened its eyes on Christmas morning to a realization that it had in its stocking a perfectly good guarantee that there would be no more panics if the vast reserves of the U. S. A. counted for anything it was actually too dazed to know whether to shout or cry. So it merely stood still and stuttered.

That, in a nutshell, is the legacy that 1913 has left to the American clay industry. Now, as to its effect upon the immediate future.

Nineteen fourteen looks good for the simple reason that the unlucky 13 does not appear in it. That alone encourages one to hunt up his 1912 rabbit's foot. Any hired optimist could say that the new year is going to be full of prosperity. money and good cheer, mail it to source of publication and in the next mail send in his "string," but after passing through a year like the last one. the sage and conservative clay products manufacturer from St. Louis, or any other part of Missouri, wants to be shown facts instead of fiction.

1913 IN RETROSPECT.—The last fruits of an artificial stimulation of prosperity, a sort of hang-over from 1909, 1910 and 1911 were harvested when the building season of 1912 closed in November. A change of administration at Washington came about. The result, with a heralded change in tariff laws, more trust busting and a party with an appetite sixteen years long, was a sort of spinal meningitis to business and investments shortly after the first of the year. Money became tighter as the months rolled by, but in many lines the volume of business taken on credit, continued to be good, until the uneasiness reached the man in the street. When he began to tie a safe deposit anchor on his money there was no longer much activity in real estate, in the East, at least. The number of private sales shut off perceptibly, until for whole days not a single private sale was reported in Greater New York, out of approximately 5,000,000 people and assets amounting to seven billions of dollars! That was in July and August: normally good sales months.

When real estate demand shut off building construction slumped. Statistics from the Bureau of Building for the entire city are not available at this writing, but on Dec. 15 the amount of building construction for the greater city showed a drop of forty-five per cent from the figures of a corresponding period in 1912 and this was reflected in the sale of only 642,950,000 common Hudson brick in this market for 1913 as against 758,800,000 for 1912, or a loss in volume of 115,850,000. In 1912 the average market price for Hudson common brick was $6.75 while this year the average price is nearer $6.12½ a thousand, wholesale.

Instead of manufacturing the full average quota of a billion brick, the Hudson manufacturers produced nearer 750,000,000 and shut down a month to forty-five days ahead of time. Even after they shut down, the manufacturers had hard work selling the brick they had in market. The dealers, feeling the money stringency artificially produced by a timid coterie of bankers, insurance companies and title concerns, failed to stack brick in the quantity they normally put aside and the big distributors here had to be content with selling brick from hand to mouth.

But earlier in the year another factor existed that hurt the Hudson brick manufacturer. There was grave doubt regarding the outcome of the case of the people against the Greater New York Brick Company alleging that it was a combination in restraint of trade. Rather than run the risk of tying up on contracts with a company that might be adjudged an unlawful concern, brick was purchased in liberal quantities from Raritan interests and in consequence certain establishments along the South river in the vicinity of Sayreville, New Jersey, will not agree with the foregoing statement of depression in the brick market and will maintain with some gusto that the year 1913 has been an exceptionally generous one with prices ruling firm, considerably above those ruling last year and with demand steady until the latter part of the building season, or about the time that the Grand Jury dismissed the complaint without comment against the Greater New York Brick Company. Likewise certain manufacturers of common brick having extensive plants in the vicinity of Matawan, N. J., will take exception to that part of this review declaring that business has been depressed for has it not put into its vest pocket one of the biggest single brick contracts that New York ever has turned out? The Equitable building will take about 17,000,000 common and hollow brick. Deliveries will run well into next fall.

As the time approaches when action on the currency bill might be expected, money in the East became tighter than ever. Hudson manufacturers even with a curtailed output for the year, became restive when their barges down here in the market remained unloaded about the docks of New York waiting for berthing accommodation. At one time there was estimated to be about 100,000,000 brick waiting orders here, but the dealers had no room for it, jobs were not going ahead and the brick lay here idle. In the meantime more barges began to come down in anticipation of navigation closing, leaving the manufacturers up the river without barges to cover. So they decided to take a hand in the selling themselves and while the quoted price continued at $6.00 to $6.50 for uncovered Hudson brick, they went to customers and shaded the price to start some money coming their way and to get their barges back to the kilns to cover before ice shut off communication with the city.

As the year closes, 1913 savors of bad money. A great deal of money has been lost in the brick making industry of the east. One source of outlet. the shipment of pale brick has been shut off entirely by the Bureaus of Buildings. This means a tremendous waste up at the yards. Competition has been closer and this has shaved manufacturers' profits and has made dealers timid. Because they were compelled to shut down their yards earlier than usual, bank balances shrank because great numbers of laborers had to be paid off when the market was at its weakest and there was no immediate rehabilitation of deposits. As a whole the clay products in-

D. E. REAGAN,
Hocking Valley Clay Products Co.

CHARLES H. FROST,
Los Angeles Pressed Brick Co.

FRED WHITE,
Jenkins & Reynolds Brick Co., Chicago.

terests of the entire east are glad the year is over and they turn with hope to better times in the next twelve months.

1914 IN PROSPECTION.—If the man in the street were asked how business is he would say it was "rotten." He would look upon the new year in exactly the same tone that big men, the heads of financial institutions, manufactories and title companies looked upon the approach of 1913. But the captains of finance, industry or thrift do not look with apprehension on the new year. Sentiment in higher planes is different than it was even two months ago. And sentiment is the forerunner of good or bad business. The reasons why leaders of financial and industrial thought are entertaining better sentiments follow:

The improved demand for bonds and mortgages on real estate security has improved. Assigned mortgages recorded during the first twenty days of December showed a gain in value of 18 per cent and in volume 37.5 per cent over the corresponding period last year. It is in assigned mortgages that savings banks, trust companies and title companies largely invest their money and when an improvement is noted in that department, the private real estate sales market immediately improves and building construction follows. The very fact that savings banks and trust companies are returning to the assigned mortgage market after ignoring it for almost eight months is in itself a conclusive proof that big men have taken a different view of the business future as it applies to the brick industry of the east.

But there are other factors. Chief among these is the great movement noted in industrial plant extension. In other times big business has had the run of prosperity. Their very closeness to the seats of the mighty have permitted them to develop their plans to meet contingencies even before the public, much less their smaller rivals, knew what was on the political tapis. It seems, however, that a change is coming about. Big business has found its protection knocked from under it. It no longer enjoys the protection it did. Lobbyists have found themselves ignored and all business has had a square, even start. With vast capital tied up in worldwide business enterprises, big business has stood aghast at the new conditions and while it is trying to find out where it stands and what it can do, the smaller business men, on the plain ground that smaller bodied can move faster than large ones, are expanding their capacities to take care of business that thye can see coming to them even now.

At any rate, the number of manufactories projected up to December 22, as reported for the Metropolitan district, which includes a radius of thirty miles from the city hall in New York is 11 per cent in excess of that of any other type of building; and what is even more to the point, more than two-thirds of this type of construction is being carried on out of profits and a shaving of dividends, so that the alleged tightness of the eastern money market cannot affect it in any way. They are bound to go ahead.

Now, as to the source of all this new business. Much of it will come from new fields but most of it will develop from a change of manufacturing centers in our own country.

The Panama canal will be opened within another year. Everybody knows what that means, but everybody is not aware of the tremendous significance the Erie canal opening will have for the East. Instead of raw materials coming from the Middle West depending upon the railroads and their high freight rates, the Erie canal will bring in the raw materials to New York, as the manufacturer is figuring it out. It will take the wood from the forest bordering Superior bring it to New York where the steel from Pittsburgh will be made into chucks, shuttles, arms, legs and plates by the eastern labor market and it will go back, not by railroad, but by Erie canal 1,700 miles into the interior of the country as a sewing machine. Vast amounts of capital are being invested in new and extended refrigeration plants and refrigeration barges that will carry Argentine and Australian meats into the middle of America. The great cotton oil plants of the south will ship the seed to the New York by barge and the Erie canal will take the finished product, soap, oils and lard substitute far into the interior at one-third the haulage charge that the railroads could transport it.

Even clay products will not be ostracised from this benefit. The market for eastern architectural terra cotta will be greatly expanded. Fireproofing material nof confined to the market adjacent to the place of its manufacture will, by the low carrying charges of the canal barge be available to a tremendous countryside of farms, towns and cities that now are forced to use cement for much of their construction. Even good brick will be made available for farm use that, owing to the high cost of transportation cannot take an active part in farm construction.

The vast coal deposits served by the Erie canal may eventually prove a means to cutting down the cost of brick making along the Hudson. One of the great factors in making the cost of brick manufacture in the east so high is the cost of coal made high by heavy transportation charges and the Hudson will be the open highway for western coal deposits that recently have been opened up. But this is a possibility that cannot come within a year, or even two. It is the immediate future that brick interests are interested in.

Eastern clay products manufacturers have waited long for better times. They have not been able to make much money for more than half a decade. They have been patient and they have endured much, from a restriction of part of their marketable produce down to practical annihilation. They have been bumping along on the bottom so long that the bottom has begun to be worn smooth. They need a boost, and these are reasons for believing that 1914 will be the turning point to better times.

Chicago Treats Burned Clay Products With a Generous Hand the Past Year.

By WARFIELD WEBB.

Staff Correspondent "Brick and Clay Record."

For several reasons the year that has just closed will mark one in some respects that is unique as applied to some of the clay industries. In other ways it was a normal year—that is, there was a brisk demand for most lines of clay products, and this now covers in this section a wide variety. If we were to make a comparison, with the amount of business done in 1912, there would be a pleasing balance in favor of the year that has just closed.

The building permits show a slight increase in amount of over a year ago, and while this looks significant, there must be taken into consideration the fact that it includes all kinds of structures and all kinds of materials. So the percentage of clay products that were used in this line of work, while large, has not been made so without a competition that has always entered into the topic of building construction. As one well known brick man stated the case, there is still a very great loss sustained by fire in this country; in fact, this in reality amounts to about 300 per capita, and still there are many yho will persist in using materials that will make possible this further loss that must be sustained by the people as a whole.

On the other hand it has long been a well known fact that Chicago and Cook County, as well as much other territory adjacent to this city, has been a loyal defender of clay for all kinds of structural work. There are every year thousands of buildings erected that have for their very essential parts,

H. S. RENKERT,
Treasurer and General Manager of The Metropolitan Paving Brick Co.

clay products in one form or other, and the use of this material has steadily gained in the past few years. There are some who persist in adopting the less desirable kinds of structural materials, but there can not be hoped to gain all the work and to furnish all the materials that are annually consumed in this vast city.

So there is a feeling of satisfaction and a consoling thought noted among the manufacturers and dealers in clay products. It may be that some lines have been jarred a little by a lack of as high prices as the conditions would seem to warrant, but this is one of the obstacles that is met with in every industry at one time or another, and that is but the outcropping of conditions that do not seem to be controlable. There has been ample business, and this has at least compensated for much otherwise that might be considered as unfortunate. So on this account no one is really in a mood to complain about anything very seriously.

Fortunately there was little cause for labor agitation, and the difficulties in this way were not more than might be looked for at any time. This little difference came early in the year, and was settled without much ado. Later there arose the difficulty of getting ready cash by those who contemplated building operations, on account of the higher rates of interest charged, this having a tendency to check the conditions to a greater or lesser degree. In the past month or so there has been a change for the better in this way, but it was then too late to begin work for spring renting and occupation.

One other feature was noticeable this year in this city. The number of very large structures was less than for a year or so. There was considerable work done, but the contracts and materials were ordered last year for much of the work on the very large structures in a number of instances. There was a considerable number of lesser structures, factory buildings, residences, apartments and number other structures that naturally demanded considerable clay materials.

One factor that entered in a rather peculiar way to help along one line of business, that of the sewer pipe, flue lining and wall coping, was the flood in Indiana and Ohio last spring. In this case there were a number of plants manufacturing these products that were seriously damaged and temporarily put out of business by this catastrophe. The damage done by the water to streets and houses necessitated a vast amount of sewer pipe and kindred lines. This gave the plants in other sections much more to do than ordinarily, and made the demand and the prices very favorable for many manufacturers of these lines. It did not interfere to any prolonged degree with the operations of the damaged plants, and with their resumption, they were enabled to reap a nice demand also. So it is indeed an ill wind, etc., as the time-honored truism has it.

In fact, the past year has been one of very great activity for the above lines, and much of it was due to the flooded conditions in several parts of the country. The plants have been able to make a material advance in this way, and there is a feeling of gratification in the hearts of the operators.

Building brick has had its inning here. It always does have in Chicago. There are millions of brick made here each year, and the supply never seems to be very much in excess of the demand for this product. The weather having been favorable for operations much of the year, even up to the very last, has been one of the pleasing factors that has been helpful in making the manufacturers get things in good shape for even longer operations than usual at this season. Prices never vary much on this line of clay product here, and there seems to be a stability to this branch of the industry that has become a kind of fixture that is rather to be expected than otherwise when the final round up is made. No one is found to be kicking, and the situation in this line is gratifying in all respects.

With the face brick men there has been a year of good demands. All of them seem to have been fortunate in getting their share of the demands, and while it might have been a little better, in reality there was a slight advance over the past year in the way of orders. Of course there is competition that is always keen, and that acts as a stay in some instances to a more notable achievement in some ways. The one thing noted was the readjustment of many of the displays, and this, with the new brick faces, was a good indication of the interest that is always so keen here.

Fred G. White, of Jenkins and Reynolds Co., was pleased with the situation. He had found the year to be good, and the demands generally to be all that could be hoped for, with orders very freely given. There had been several things that had of later date tended to affect business, but not seriously, and in the past month there had been a more favorable activity noted again. The political questions had been doing something to act in a contrary way, and with these out of the way there would be a more normal demand for the future.

E. K. Cormack, of the Wisconsin Lime and Cement Co., was well pleased with the past year's business, both as applied to face brick and to the paving brick industry in this city. Mr. Cormack is an ardent advocate and a strong worker for vitrified paving brick, and has done much to boost the idea here with good results. He reported that the demands for all lines had been better than the year previous, and while prices were not as high, there had been a very flattering demand.

On the matter of fire brick lines the situation had been very brisk up to the latter part of November. This is one of the industries that is always affected by the steel conditions, and there was a notable falling off in this industry at that time. It was due in part to the railroads decreasing their orders, and to the currency question. One can always be guided by the general conditions in this way if there is any amount of thought given to the steel industry. It acts as a kind of barometer, and the fire brick men always are affected by it.

This matter was made a little more forcible by Charles Reed, of the Chicago Fire Brick and Retort Co., who stated that his company had enjoyed a very fine business during the year until later in November, when there had been a dropping off due to the general unsettled conditions as particularly as applied to the steel industry. However, as there had been a very good year, and with a plant in the best of trim to care for an increased demand he had no cause to make any complaint. The power house being rebuilt and the plant now operated with electricity, there was ample ability to care for the business that would be sure to come with the new year.

The architectural terra cotta industry has had a fair year. By a fair year is meant that it was not as active as it was in the year previous. But this must be understood to be appreciated. In that year there was a vast amount of both large and small work, and the demand for this commodity was great indeed. So if we are to take the year of 1912 as a guide there was less activity than was noted in the year that has just closed. One finds more and more of the terra cotta details being used in small structures, and as for that matter more being used in the erection of buildings that are only of moderate size. With the entire situation viewed in its proper light there has been nothing to cause any undue anxiety in respect to this industry.

This was the outlook as noted by the Midland Terra Cotta Co., and it is only the sentiment that is noted by the other organizations. There is a satisfaction noted in the tones that indicates a feeling of satisfaction over the situation as a whole. The plants have been kept busy and there is not much more to be desired than this condition, if it does not become less so.

So far as the sewer pipe and other lines go, Mr. Witack, of the Wm. E. Dee Co., was much pleased to report conditions as being above the ordinary for the past year. This, as we noted above, was due to a great degree to the floods. It had been possible to operate with all hands, and the orders and prices had made the year a little remarkable in this way. While one of the company's plants had been damaged by the flood, it had not seriously interfered with the operation of the others, and they were able to care for all the orders that came to them.

When we consider the conduit and building tile lines, as being a part of the vast clay industry as represented here, there is still another story to tell of the increasing importance of Chicago as a clay center, and of its greater increase from year to year. The use of clay conduit has become almost imperative, and every severe storm brings this master more forcibly to notice. The wires must be placed under ground, and the proper method seems to be the use of clay conduit. At least one would be tempted to judge so from the way the demand increases each year. There is also the more urgent need for building houses with materials that will check the flames, and the demand for tile proves that this is a wise move on the part of many today.

In noting the demand for these two commodities, F. W. Darling, of the Clay Product Co., was pleased to say that the orders for both kinds of products had been much increased in the past year. It must be understood that this company manufactures only the clay conduit, and sells the Dennison Interlocken hollow tile. In the past year there was sold in Illinois and Indiana three million tile and many more would be sold in the new year. The year 1913 shows a demand for four million duct feet of conduit, and the next year will add two million more feet to the amount in addition to that sold in the past year. So this organization has every reason to feel thankful for a year that has been filled with good business and fine prospects.

I am not given to making predictions, because they are not always borne out, but so far as one can see now, and this is based on the interviews that have been the basis of this report, there is ample reason to look forward to a very active year in the next twelve months. The outlook is favorable now. It is not safe to say that this will be a fact. One can never tell, but there are signs in skies and in the forecast anything at all stated that this was the only sane lines that are affected by the clay industry There is a bevery atmosphere that gives promise of a better year in all lief for this in the trend of things, and those who cared to and sensible way in which to view the matter. The outlook offers this, and with the big political questions set at rest, and the general activity once more noted, the clay men will have all they can well care for and much to be thankful for in the way of orders.

Pittsburgh Reports Heavy Sales in the Ohio River Valley District.

By MILLARD K. ZIMMERMAN.

Staff Correspondence "Brick and Clay Record."

Never in the history of the paving brick and block industry has the volume of business been so heavy as the manufacturers experienced during the last year. Never before has the winter or closed season come around, when the manufacturers had so much hold-over business on their books as is the case this season. And, never before, has the industry, as a unit, been in such excellent condition as it has been during the last twelve months.

The idle plants were very few and far between. Orders have been received from almost every state in the union, all of which is absolute indication that municipalities and county and state authorities are taking to brick as a road building material in preference to all other "creations." That the paving brick and block, when put down under a standard specification has a lasting quality is admitted by all engineers who have gone into the subject at any length. "Conversions" are being made daily. And, the end is not yet.

In making the statement that the past has been the biggest year in the history of the industry is proved by the large volume of business now on the books of the sales departments, and which were held up on account of the lateness of the season. These orders have not been countermanded, only held up for the present, and with new specifications reading to "ship early in the spring," which means when the weather permits the continuation of street and road improvements.

No serious losses were sustained by the manufacturers in this industry during the last year. True, early in the early part of the year some labor trouble existed here and there, but these unrestful incidents did not prevail in a broad sense. Such disturbances were confined to plants here and there, and did not reflect upon the trade in general.

With the labor skies clear, the manufacturers went in for new and larger business, with the result that blocks sold in the Eastern market on a range of $14@$19, with a tendncy toward the higher levels. However, it is reliably reported that the average sale of paving blocks in the entire Eastern market was done on a steady range basis of $16@$17. These quotations, which have been taken from the sales account sheets of reliable dealers show that the market on a whole was decidedly firm in its tone. It is also openly asserted that there was not at any time outward evidence of the manufacturers seeking to get business at the expense of a competitor on a cut-price market. It was realized that the demand was good; that the orders were good, and that the only thing wanted by the buyers was prompt deliveries. After all is said and done, deliveries were admitted to be rather prompt.

Plants were operated to capacity in almost every instance. The trade started early and closed late. Therefore, the season was much longer than has been experienced in past years. When it was known that this or that block manufacturer was a little slack in orders, other manufacturers who were crowded rushed sufficient business to those particular plants to keep them on the active list. In this way, the former manufacturer was placed in a position to make quicker deliveries.

Labor was scarce in some localities early in the season, but as the months passed toward summer, this scarcity was soon eliminated.

With this scarcity eliminated, and which gave the manufacturers opportunity to operate to capacity, the matter of car supply had to be taken into consideration. Traffic departments of the various railroads were interviewed, and the condition of trade explained. These railroad officials put their ear to the ground, saw a lot of increased business in sight, and then took steps immediately to take care of it. This they did, and which the manufacturers give them credit for doing. However, at times there was a shortage of cars in this or that market, but the shortage was only temporary in character, and was soon relieved.

In one or two sections, the coal strike interfered with steady operations of some of the paving block plants, but as soon as this condition was righted, the plants went on full time.

Shipments were made in the main direct from the kilns. It was a happy manufacturer who was in a position to get even a little stock ahead. Few succeeded on account of the demand for hurried shipments of all contracts. This condition continued until late in the year, and it proved one thing to the manufacturer, that instead of having a lot of money tied up in stocks, he had it in the bank to the credit of his firm.

It is openly declared by some of the larger paving block manufacturers that there are less yard stocks available now than ever before, and for the above reason.

While these statements refer to the past and present, a look into the future discloses the fact that all manufacturers have a good volume of business on file to start their plants any time after January 1. Municipalities have passed considerable legislation of late, so contractors' reports infer, which call for millions of dollars' worth of work for the coming year. This is good news to the paving block manufacturer. It means a repetition of 1913 business.

So pleasant is the outlook for heavy 1914 business in this industry that some of the larger manufacturers are taking time by the forelock during the present lull to improve their machinery, erect new kilns and otherwise increase the capacity of their factories. The spirit of optimism pervades the paving brick and paving block industry.

In the sewer pipe world, trade conditions during the past season have been very good, and sales have been large. Both independent and other manufacturers have been offered about all the business they could conveniently handle. Some of the conditions which prevailed in the paving block industry are likewise related in this field. Help was scarce early in the season. The car shortage was felt to a slight degree, and the coal strike concerned one or two manufacturers.

In the Ohio Valley, all sewer pipe plants operated continuously throughout the year. Trade was good. Municipal requirements called for the delivery of thousands of car loads of pipe. The placing of this pipe in the streets was followed by the laying of paving blocks. In fact, when it comes to municipal improvements, paving blocks and sewer pipe go together, hand in hand.

The bulk of the municipal work was suspended December 1. Not a small amount of unfilled orders remained on the sales books at that time. This business has to be carried over until the new year and serves as a nest egg for the manufacturers to start to work on at the opening of the new season.

Throughout the year, prices have been rather firm. There has been no occasion for "slashing" of lists, for the trade was active at all times on current lists. There has been a general close adherence, so it is said, to the Standard Sewer Pipe list, which became operative last May, all of which was based upon cost of manufacturing. The introduction of a cost system in these plants proved to some of the manufacturers that some lines could not be sold on the old basis, and a revision of these lists, of course, resulted.

Just at this time, the jobbing interests, and the builders' supply dealers are buying only requirements, or on the "hand to mouth" order. These buyers do not desire large stocks on hand when they take their annual inventories. When the invoicing is done, and the records for the year are tabulated, then the purchasing departments will start to get busy, and a flood of new business will go rolling into all the sewer pipe offices.

There will be a greater kiln capacity in sewer pipe during the coming year, based on reports that several new factories are to be built in the Ohio field. Details concerning these are not available at this time. However, many of the older plants are adding to their kiln capacity, and this means an increased production.

Louisville Clayworkers, Hopeful, Look for Better Times in 1914.

By G. D. CRAIN, JR.

Staff Correspondent "Brick and Clay Record."

A review of the past year in Louisville with reference to the brick and clay field shows that it was not nearly as bad as it might have been, or, to put it somewhat more cheerfully, that it was, on the whole, rather good. The general tendency of the trade to call it a very poor year is not to be found among the more thoughtful, who have analyzed the situation and seen that this is not true.

The record of the building inspector's office, which may be taken as a pretty good criterion of the way business went, at least in the brick trade, which is by far the more important end of the industry in Louisville, show several things, in this connection. At a glance, they give good ground for the assertions of the pessimists, that the past year was one not to be ranked among the prosperous ones in this section, because the totals show that in the value of the work actually contracted for, 1913 fell very considerably below the figures for 1911 and 1912.

There is no getting away from this fact. On the other hand, however, there are certain considerations which should be taken into account, which make even the showing of the building permits rather better than it appears at first glance. Chief among these are the fact that 1911 and 1912 were both years of remarkable activity in the erection of large buildings in Louisville, the million-dollar city hospital, several big skyscrapers and other large buildings being erected in those years.

Were these subtracted from the total, the comparison would not be by any means unfavorable as between those two years and that which is just at its close. Moreover, going back to the years preceding them, this is made still further evident by the fact that in spite of its alleged slowness, 1913 exceeds 1908, 1909 and 1910 by a good deal. In this connection, a short survey of the number of permits and the value of the buildings for the years mentioned might be interesting, for purposes of comparison. The month of December is excluded in each case, because figures for that month are not available for 1913, and that month is in practically every case the poorest of the year. The figures are as follows:

	1908
Number of Permits	2,782
Amount	$2,794,698

1909	1910	1911	1912	1913
2,741	2,292	2,435	2,259	2,306
$3,152,884	$3,525,098	$5,991,735	$6,529,390	$3,915,363

It will be seen that while 1912 was the biggest year on record, the number of permits was smaller than in any of the years mentioned, showing clearly that the large total in value was due to a number of unusually big jobs. The average value per job could be figured out easily, and might be interesting. In the absence of accurate figures showing exactly the number of brick of various kinds used during the year, the building permit figures will perhaps give a clearer idea of the extent of the activity in Louisville than anything else—this being true, by the way, by reason of the undoubted predominance of brick as a building material. Not a single job of importance can be recalled where brick was not used, which, in the slang phrase, is going some.

An interesting feature of the past year, in the brick business, is the number of high-grade hydraulic building brick imported, "Hy-Tex," the line handled by Owen Tyler, being perhaps the favorite, especially for expensive residences. The cessation of operation by the Hydraulic Brick Company, a concern which devoted itself exclusively to the manufacture of this kind of goods, gave the outside manufacturers a better chance in Louisville than they formerly had, although this is not to be taken as meaning that there is no high-grade brick made in Louisville. Common brick and paving brick are heavier lines, however, with most of the manufacturers, and the wide variety of finishes and colors offered by outside concerns has proved attractive to builders.

"While the number of permits for buildings has been smaller than for several years," said Mr. Tyler, "we have handled a larger number of handsome residences, calling for first-class material, than usual, this kind of work being apparently more common than ever before. The demand for high-grade brick has been especially good from out in the state, and on the whole our business in the brick line has been extremely satisfactory, perhaps as the result of the extra work we did to get it."

Terra-cotta for ornamental purposes, hollow tile and other fireproofing materials have been in good demand, several good-sized buildings calling for considerable quantities of these materials, while the number of small jobs in which these products were used was unusually large, considering the falling off in the amount of building as compared with the past two years. This indicates a healthy growth in the use of non-combustible materials in the better class of dwellings, which may be expected to increase, as a result of the educational work being done by the trade among the public.

It has been a rather poor year for sewer pipe, although the latter part of the year has seen the letting of some fairly good-sized contracts in Louisville. It is worth noting, however, that reinforced concrete pipe has made serious incursions in the field formerly occupied almost exclusively by vitrified pipe, this new material having been admitted to all jobs by the ctiy of Louisville on an equal basis with vitrified pipe. One very large job recently let will be built with concrete exclusively, monolithic concrete being used for the larger portion, and concrete pipe for the smaller part.

Wood blocks have also come into the field as a hot competitor of all other paving materials, including vitrified blocks; and while the high cost of this material bars it in a good many instances, it has been used on a number of small jobs in Louisville lately, where brick might have had a chance. As a general rule, however, brick is holding its own pretty well, this being especially true out in the state, where the cities and towns are loath to experiment, preferring rather to use a tried material. The conditions referred to, however, indicate the need for some energetic work on the part of manufacturers both of vitrified pipe and paving blocks, against the incursions of the substitute materials mentioned.

It seems to be the consensus of opinion that prospects for 1914 are not especially bright. It is pointed out by leading brick manufacturers, handling various varieties of brick, as well as by manufacturers of other materials in the clay field, that whereas a year ago there were in sight or under way a fairly large number of good-sized jobs, there are at present very few things in sight that could be called big; and it is also suggested that if the existing mild business depression deepens, as there is some prospect of its doing, there will be even less building in a small way than in 1913.

On the other hand, however, some members of the trade argue that inasmuch as there was a falling off in small building work during 1913, it is reasonable to look for an increase in this kind of work during 1914. Moreover, it is seldom that small work can be learned of in advance, so that the fact that it is not clearly in sight just now has no particular weight.

Indianapolis and Hoosier State Are Hurt by Big Floods of Year.

By H. R. JENNE.

Staff Correspondent "Brick and Clay Record."

The year past has been a bad year for the Indianapolis brick and clay trade. Nearly every industry in the line has had a stiff struggle to equal its 1912 sales. Increases over 1912 business, where there have been increases, have been inconsiderable. But there is no gloom in the view taken of the situation. The idea current is that all things considered, the Spring floods, the strikes, and the general unrest due to financial conditions, all unusual conditions which had to be overcome, the year was really a good one or business could not have broken even. The feeling is that 1914 is bound to be a better year.

The biggest factor in the slump of 1913 was the flood of last March. It crippled delivery service and left business practically at a standstill. Business was several months recovering its equilibrium. In the ordinary course of events the halt caused by the flood would have been made up in the months to follow, but unsettled labor conditions prevailed through the rest of the year. First came the strike of the carpenters to unionize the mills, then the strike of the painters, both clogging forward progress. Toward the end of the year came the jurisdictional fight between the bricklayers and the other building trades, amounting to a complete tie-up, though fortunately at a time of year when there was not much doing. Coupled with all of these things, of course, was the uncertainty in financial circles, and the difficulty of getting loans. Usually there is a car shortage, but material men say it was negligible this year.

T. F. Murray, of the General Construction Supply Company, agent for the Atlantic Terra Cotta Company, sums up the slump in terra cotta as compared with 1912 as amounting to about fifteen per cent. "The first three months of the year," he said, "up to the time of the flood, were promising. I looked for a good year. Then came the flood, and the labor troubles, and money was tight, and the slump came. Business promised to open up in the fall, but more labor trouble was visited upon us and the drag continued."

W. W. Winslow of the Indiana Paving Brick & Block Company, says that paving brick just about held its own insofar as his plant was concerned and so far as his knowledge of trade conditions went. W. R. McKown, of the Brooklyn Brick Company, and C. F. Pritchard, formerly of the Adams Brick Company, now of the Veedersburg Brick Company, both agree that breaking even on sales of common and face brick was better than they expected. One advantage the year had over 1912 in this line, is that prices were better.

J. H. Zinn, an officer in the Builders' Exchange and the Contractors' Association and a stockholder in several brick and burned clay interests handling hollow block, tile and sewer pipe, says that prices were a bit better, but that sales were harder to make. Manufacturers in these lines found business slack and returns hard to keep at an even stride with the past.

Data from the office of the building inspector bears out the statements made individually by men in the industry. The total cost of brick and fireproof structures in 1912 was $3,308,155. With half of December still to be heard from the total for 1913 is $3,301,492. The year undoubtedly, when all the figures are available, will show a slight increase over 1912. A table of results for the two years taken from the records of the building inspector is as follows:

	Brick Structures.		Fireproof Structures.	
1912.	No.	Cost.	No.	Cost.
January	4	$ 16,050	2	$ 27,500
February	1	4,500	19	5,780
March	7	61,500	2	123,500
April	15	211,890	4	345,000
May	9	123,900	2	112,000
June	8	60,250	..	......
July	13	407,525	1	400,000
August	8	125,300	3	231,200
September	12	197,000	6	168,500
October	8	126,300	5	143,100
November	9	63,560	1	65,000
December	8	151,800	3	137,000
	102	$1,549,575	48	$1,758,580

	Brick Structures.		Fireproof Structures.	
1913.	No.	Cost.	No.	Cost.
January	5	$ 39,100	..	......
February	7	63,100	1	$ 18,000
March	7	51,450	6	152,000
April	9	174,622	3	734,000
May	17	130,680	8	232,900
June	12	213,640	2	70,000
July	14	278,800	6	263,000
August	5	81,000	10	144,250
September	7	48,900	11	133,950
October	4	28,500	4	15,100
November	5	111,500	2	53,000
December (incomplete)	2	14,000	1	250,000
	94	$1,235,292	54	$2,066,200

Data from the office of the city engineer would seem to indicate that the paving brick men are overlooking some opportunities. In effect the asphalt men seem to have said to the brick men, "We will let you have the alleys and we will take the streets and boulevards." The only brick paving ordered by the city was in alleys and the total was 9,090 square yards at a cost to the city of $19,529.54. These figures will be changed to some extent when returns for December are complete.

The outlook for the year 1914 is based on a belief that general conditions in the financial world will clear up. The Indianapolis brick men believe the people generally have confidence in the administration of President Wilson and his ability to bring stability as quickly as possible out of the legislative unrest. The confidence in the President himself, they believe, will help to better the financial situation. They expect the coming year to see money easier and capital more aggressive.

Coupled with the faith in general conditions, is a faith in the industry itself. There is a well-defined forward movement in public sentiment here toward increased use of burned clay products for building material. The increasing cost of lumber has turned people naturally to a consideration of other building materials. From that to belief in superiority of burned clay materials has been but a step. The face brick, common brick and paving brick men especially are optimistic along this line. Terra cotta, too, is being given more consideration, and a tendency toward the better grades, a growing tendency to consider it on a quality basis, is noted.

The Adams Brick Company was one of the few companies to show an increase over 1912. In 1912 the company sold 18,000,000 and the sales for 1913 will run better than 18,500,000. The Brooklyn Brick Company run for 1913 is estimated at 12,000,000, which equals that of 1912. When accurate figures are available for the year this company expects to show a slight increase for 1913. Figures from other companies are not made public.

St. Louis Manufacturers Complain of Poor Year, But are Optimistic for the Coming Season.

By J. S. FREY.

Staff Correspondent "Brick and Clay Record."

The past season has been very unprofitable to the clay working industry in the city of St. Louis. Building operations have fallen considerably below the operations for the year of 1913. It is estimated at this writing about 35% decrease.

A majority of the manufacturers in this district have closed their plants to undergo the repairs that are needed and it is not likely they will resume operations until the Spring, as there is a plentiful stock on hand at all the plants waiting the call.

Money has not been very plentiful, owing to the uncertainty of political doings at Washington.

All manufacturers have reported that prices were not what they should have been, but this condition is due to the fact that some of the manufacturers cut prices 50 cents to $1.00 per thousand, which does not influence building construction nor does it benefit the manufacturer.

The principal feature of the year just past in this city has been the building of hotels and apartments, ranging in value from $50,000 to $1,000,000.

Face brick and terra cotta is extremely popular for this class of work, which has probably been the back bone of the business.

Some good size office buildings have been constructed this year, the largest one being the Monward Building, located at Broadway and Olive Street, which is being faced with speckled gray enamel brick and terra cotta to match. This structure when completed will be 19 stories high with a tower 7 stories high, etsimated cost about $1,000,000.00.

Face and common brick manufacturers in this district while admitting that they are not very well pleased with the volume of business for 1913 are of the opinion that the new year will produce a larger volume of business than during the past twelve months.

The prospects for 1914 in the face brick are bright enough, but the real question is not so much consumption as it is the price, owing to the keen competition in this particular line it is a question whether it is worth while to manufacture brick at the figures that some have been sold at.

Home building in the suburban district has not been as the manufacturers would desire to see it, but hundreds of new homes are planned for the early Spring building program. It is observed that buildings of this class, in which brick is extensively used, predominate.

There has not been as much street paving and alley improvements in this immediate vicinity as the manufacturer would like to see. There are good road projects on foot all over this part of the country and people are beginning to realize more than ever the advantage of brick for paving purposes. The field in this state is a very large one and the people look upon this product as the coming material for city streets as well as the country roads.

There will be a large amount of municipal improvements the coming year, in fact the paving brick manufacturers are led to believe the double work in volume of that of 1913 will be ordered through the councils of the various towns and cities.

Issuance of several millions of dollars in bonds will be again recommended in the annual report of the sewer commissioner, to relieve the overload sewers and rebuild other sewers, which will consume a great quantity of paving brick.

This line of fireproofing has found a home amongst the architects in St. Louis, as they are beginning to realize that hollow tile can be safely used in construction of load bearing walls when the proper specifications are followed. The architects here as well as those in other locations are recognizing that they can build tile residences, many of them stuccoed on the exterior, practically as cheap as frame, and that are enduring as well as being fireproof.

The Hydraulic-Press Brick Company has equipped one of its plants with a full line of this machinery to manufacture this line and are highly pleased with the results so far obtained.

The Laclede-Christy Clay Products Company, licensees of the Denison hollow tile, heretofore has been the only company to manufacture this tile. With both these industries making this line, they will [illegible] business, which has been shipped in from surrounding territory.

The demand for terra cotta has been about normal the past year, with prices about the same as the year of 1913.

One of the most encouraging signs is that the architects are realizing the possiblities of terra cotta for trimming as well as for facing and many of the great office buildings erected during the past several years bear terra cotta instead of the regulation stone and marble trimmings. An idea of the extensive use of terra cotta in the construction of modern skyscrapers is gained when it is noted that in the construction of the 21 story Railway Exchange Building, largest office building in the world, rising more than 50 feet higher than any other building in St. Louis, is faced entirely with terra cotta, which was furnished by the Winkle Terra Cotta Company, of this city.

The farmers throughout the state of Missouri are learning that the clay silo is a very profitable investment, and the year of 1914 will no doubt see the erection of many more silos than the year just past.

The demand for enamel brick has been very gratifying to the manufacturer the past season, enamel brick manufactured in this city is shipped to all parts of the nation. Several large orders for this line have recently been executed. The outlook for 1914 is very encouraging, as the past year has seen all meat markets and bakery shops, faced with this brick inside.

The sewer pipe demand for the year of 1913 has not been on an average with that of 1912, although prices have been about equal. Prospects for 1914 look very encouraging and all the manufacturers in this line look for a very good year.

The fire brick manufacturers report business for the year of 1913 about equal to that of 1912, with a bright year before all.

The Hydraulic-Press Brick Company reports that the situation with it is not very active at present. All of its plants are undergoing the usual repairs and will soon be in operation. They report the prospects as fine and no reason to look for anything but a very fine year's business.

The Progress Press Brick Company are doing a fair business and state there has been no great activity, but a normal demand. The indications look favorable for the new year.

The Evans-Howard Fire Brick Company is doing a fair business in sewer pipe and wall and coping tile, and reports that business has been fair the past year.

The Winkle Terra Cotta Company has had a fairly active year. It has operated about as usual. It reports the demand for terra cotta has not been very active of late, but prospects look favorable for the coming months.

The Laclede-Christy Clay Products Company states there has been a good call for its lines. The indications offer a very pleasant prospect for more business for the year of 1914.

The Blackmer-Post Pipe Company has found the demand for its product to be well and good. Operations are being carried on about as usual at their plants.

Detroit Clay Workers Feel Optimistic Over Prospects for the Coming Year.

By JACOB SMITH.

Staff Correspondent of "Brick and Clay Record."

Building operations in any community can generally be taken as a barometer of its financial soundness and with this as a basis, little can be found to show Detroit suffering from any serious financial depression at present, or that any difficulties are looked forward to in the near future. The year 1913, during the first eleven months alone, has set a new record for building operations, and the work now under way, which is planned to be started during the early part of 1914 shows there will be no appreciable falling off during the coming year. It is more plausible that the volume will increase.

Although the cry of financial stringency went up in the summer, building operations continued unabated and did not fall off until the first of October, which is an annual occurrence and is not to be alarmed at.

The open weather has permitted building in all lines to continue right up until Christmas and this has been a great help to building contractors, brick dealers and manufacturers.

The building permits issued during the first eleven months of 1913 called for about $28,500,000 in new buildings, more than for the whole of 1912. If December holds up to the 1912 mark, the total for the year will exceed $30,000,000, which is nearly three times the total of 1908, five years ago. The prosperity of Detroit is due to the immense amount of manufacturing. The industries there have a world market from automobiles to drugs, and from seeds to stoves.

In behalf of "Brick and Clay Record," the writer took occasion to personally interview some of the leading men in the trade whose expressions of past conditions and the future are very interesting.

F. J. McDonald, of J. C. McDonald & Son, of Detroit, brick manufacturers and dealers, said: "The past summer saw a big demand for brick, in fact, it was unusually large until the first of October when trade became normal, and has been holding its own ever since. During the last three months of any year, we do not look for any big business. There is always some building going on, but it is not like the summer months. Speaking for ourselves and present conditions, we cannot say that there is very much new work in sight and there are not many inquiries, although there seems to be a lot of small jobs—to finish up so to speak,—that is keeping up the demand for brick. Our December business is holding up well compared with a year ago, and we can't complain in the least. It does not look, at just this time, as if there would be very much new work started immediately after the first of the year outside of contracts already let, but architects and builders with whom we have come in contact lately say they have lots of prospects for spring, which will make another big summer business if they all materialize. Since October 1st the price of common brick has been 50 cents less than last year. By the way, the demand for face brick this summer was the greatest in the history of Detroit."

The three largest brick manufacturers in Detroit are the George H. Clippert & Bros. Brick Company, The Lonyo Brick Company and John S. Haggerty.

"The past year has been an exceedingly good one for us, and as for the future, it never looked more promising," said John S. Haggerty, of Detroit. "Here it is the middle of December and we are delivering brick as fast as we make it. Of course, trade is not as brisk as during the summer, but for December, it is unusually good when we compare the business with the same month in previous years. In January and February, trade is bound to fall off on account of the cold weather and snow, hut we are looking forward to a big spring, and believe the business will start early. We have maintained a price of $5 per thousand for the past 15 months, and even today we are getting the same price as we did during the summer. Owing to an advance in fuel oil, prices are higher than they were in 1912."

H. P. Harding, secretary and treasurer of the Puritan Brick Company, which maintains its sales and head offices in Detroit, said: "Our business in Detroit has been fully up to 1912, but in other sections, such as northern Ohio and Indiana, our business has fallen off by comparison. Detroit has been unusually fortunate during the past year keeping in the front ranks while other cities in the Middle West have shown a decline. From the reports we get, merchants in all lines, and manufacturers as well, had a bigger business in 1913 than in 1912. Throughout the entire territory which we cater to we have found a big demand for rough face brick. While the spectacular building is cut off during stringency periods, there are always a lot of people with money who build homes and small apartments and take advantage of the reduced costs of labor and building materials." This concern manufactures face brick only.

E. J. Woodison, dealer in fire brick and foundry supplies, Detroit, said: "Our fire brick business in the past year has increased 40 per cent and the outlook for next year is exceedingly good. Prices have been steady and everything about the brick business has been satisfactory to us. December has been an exceptionally good month on account of the great amount of repair work going on which necessitates fire brick. Everything looks encouraging for January business. We have every reason to believe that next year is even going to be better than 1913."

F. B. Holmes, of the F. B. Holmes & Company, Detroit, said. "In all frankness, the brick business in Detroit in 1913 has not been up to expectations, and the outlook is none too good. Business in 1914 will be reasonably fair, but not what it has been in the previous few years. Detroit has seen its biggest growth and from now manufacturers will go along just a bit easy. It stands to reason that there will not be the immense amount of factory building that there has been in 1911-1912 and 1913. The motor car business is more staple than what it was; there is not the brisk demand that there was; factories are not so rushed for cars as they were, consequently there is no necessity for the enormous buildings that have been put up in recent years. Detroit is settling down, and while I do not look for any setback, I do not believe we will progress as rapidly in another twelve months as we have been doing. Do not misunderstand me—I am not pessimistic. I have every faith in Detroit's future. I simply believe that in 1914 we will grow slower, yet more substantially, than we have for the previous twenty-four months, which will be a good thing for the town. A steady growth that is substantial is much better than a 'boom.' "

C. S. Taylor, of Thomas Bros. & Co., Detroit, said: "The year just closing was well up to our expectations. The demand has been steady every day during the year, and much ahead of 1912. We have every faith in the future and do not see anything that is going to mar the continued growth of Detroit. Of course, there are a lot of calamity howlers who have been talking of 'hard times,' but every merchant and manufacturer that I have personally run across in the past sixty days reports a larger business for this year in comparison to 1912. There is no over-production anywhere; dealers in all lines are conservative, a fact to be admitted, and they are buying only what they need, but the time is getting near when they must have larger stocks and they must buy in larger quantities in order to get better prices so as to make a profit. No merchant in business can make money by buying from hand-to-hand. When the real buying does start the frowns on the faces of the calamity howlers are sure to turn to smiles. We have maintained our prices throughout the year, and there has been no occasion for cutting, which always signifies good conditions, and shows that dealers and manufacturers have faith in the future. We will say that there has been a tendency towards cheaper brick for building purposes, and right now this is evident. For paving purposes, Detroit has not used as much brick in 1913 as in previous years. City officials have shown a strong tendency towards wire-cut lug block in preference to repressed block. In 1914, we believe there will be a revival in the use of paving brick to replace asphalt. Architects are not using porous tile as much as formerly and we have sold a lot of roofing tile this year, and believe next year will be even better on this product."

Ralph Spencer, treasurer of The Dresden Brick Company, Detroit, said: "Our business in 1913 was double that of 1912. and the year, as a whole, was a very fine one. From the number of buildings in progress, looks as if 1914 was going to be another big year. We have found a big demand for face brick. Prices have remained about the same, but builders and contractors want better brick; cheaper brick has been eliminated on account of the scarcity of common brick."

Detroit makes no face brick. It is all shipped into this market from Ohio, Indiana and Pennsylvania, but Detroit does make common brick, and lots of it.

G. W. Cooper, Jr., of the Detroit Brick Sales Company, Detroit, said: "Our 1913 business was much better than 1912. Prices in 1913 were very good and allowed everybody to make a nice profit. We can see no reason why prices should drop in 1914, unless something unforeseen comes up. There is a lot of good building in sight, although there has been a slight falling off during December on account of the talk of money being tight, etc. January and February are always quiet; the brick business doesn't get very active until March and April, when most of the new building starts. The year 1913 was the most prosperous the brick dealers and manufacturers in Detroit ever experienced. All summer there was a big shortage in both face and common brick, but since October 1st the supply has been plentiful. The railroads have given good service all year, and there is no complaint to make on that score."

The proposed pottery in Mt. Clemens, Mich., looks more promising now than it has for some time. The city has asked the Grand Trunk Railroad to open Church street and has said to the Land & Improvement Company that if they will advance the money required to build sewers on the street extension, to be occupied by the pottery company, that the city will reimburse them by putting the amount into next spring's appropriations.

The bricklayers' union of Jackson, Mich., are objecting very strenuously to the manufacture of brick by the prison in that city, and have threatened to take some stand unless competition is abandoned. The prison authorities are paying no attention to the opposition, however. A number of bricklayers throughout the state have refused to lay any "convict labor" brick. At present the brick plant at the prison is shut down on account of the large stock ahead.

The Collingwood Brick Company, Toledo, Ohio, has offered the city 15 acres of ground free for 20 years to be used for playground purposes. It is likely that the city will accept the offer.

George H. Clippert, of the George H. Clippert & Bro. Brick Company, Detroit, is president of the Builders & Traders' Exchange, which is a "live" organization in every respect. The secretary is Charles A. Bowen, to whom great praise is due for his untiring efforts to make the organization so successful. Mr. Bowen sums up the 1913-1914 situation as follows: "The year just closing has been a prosperous one for the builders of Detroit in practically every line; in fact, it's been the best they ever had, and while the brick situation has been somewhat relieved by the fact that they were able to get a better start this spring, yet I presume their aggregate sales have been larger. Every brick plant for the past four years has annually enlarged and increased their capacity. I don't believe there will be an occasion for extensions in 1914, or even in 1915. The present facilities are probably enough to take care of whatever demand there will be for the next two years; then if Detroit continues to grow as rapidly some of the brick plants may find it necessary to make further additions. Every brick manufacturer with whom I have talked is optimistic and looks for a good business in 1914. Conditions have quieted down some and at present no one is turning away orders. Building contractors got an early start in the spring and by October and November were pretty well cleaned up on their work. The manufacturers are now able to make brick for stock and should be in splendid shape to handle orders next spring and summer, unless they should be drawn upon heavily during the winter, which I do not believe is very likely to happen. Things will open up about the first of April. The railroad situation has materially improved during the past 12 months in the way of additional switches and shipping facilities generally are better; there is not the delay and trouble experienced in other years. In 1914 some of the roads have promised even better conditions. The railroads have realized that Detroit is not a village any longer and that manufacturers must have good service and that it is to the benefit of the railroads themselves to see that they get it. All the leading architects in Detroit report that they have considerable work on their boards which will come out after the first of the new year. Some of the big contracts which will be let and work started on in January are the Statler Hotel, Whitney Office building, Detroit Athletic Club, Tuller Hotel addition and Farwell building, to say nothing of a number of good-sized buildings recently started. In 1913 there was a lot of small building, but in 1914 the buildings will be of a larger character. The labor situation in the brick industry has been fairly satisfactory, there being very little real trouble. The last half of the year was better for securing teamsters than was the first part. Taking it on the whole, there is no complaint to make on the labor situation. Getting right down to final facts, let me conclude by saying that if 1914 is as good as 1913, no one will find any fault, but in my estimation it is going to be better. It may be two or three months before things look real bright, but with the arrival of spring, Detroit will see many things happen in the way of brisk building conditions. Here's wishing the many readers of 'Brick and Clay Record' a Happy New Year."

National Capital Complains of Dull Year in Burned Clay.

By HARRY S. SHERMAN.

Staff Correspondent "Brick and Clay Record."

This has been the dullest year in this, the Capital City, that any firm has ever experienced. Some of the brick plants have been closed most of the year. Some have been closed half of the time. Prices have ruled lower than ever, from $8 down to $7 and $7.50. Washington has been overbuilt, but also the political questions have had a very depressing effect on all lines of trade. This does not mean clay products only, but all other lines have been dull. Collections have been slow, cash sales have been difficult and there has been much uneasiness among the manufacturers and jobbers.

Some plants say they will not open next year at all, unless business improves and they do not at present entertain any views as to a great change for the better. The slowness of trade has had a depressing effect on other lines not directly affected by building operations. There are a number of good brick plants here and none of them speak favorably of the situation.

There are some plants making sewer pipe and drain tile. and they have had a fair year, but they ought to do more. Decorative tile has had only fair demand. Paving brick has had a moderate sale. Pottery products have been somewhat slow. Fireproofing has been used considerable as also terra cotta, but they have both felt the unsettled conditions and have not sold as well as they should have. The demand for fire brick has also slowed up some this year.

What the new year will bring forth is problematical and there is at present no bright prospects for the general reopening of the plants and their being able to do a large and prosperous business. The market seems so utterly demoralized now that it would take some nitroglycerine, gunpowder and dynamite to shake things up for a change. There is no great jobbing business here and the city has not the varied line of manufactures that many other places have. The city depends mainly on the retail merchants, the government enployees, the diplomats, congressmen and visitors.

The plans on foot to beautify the city calls for a large expenditure of money and a number of new buildings are being finished and others to be started. The exterior of these buildings are of marble and granite, however considerable brick terra cotta, fireproofing, tile, etc., are used. The city is way behind in the housing of the various departments, many private buildings have been leased and there is not enough room now.

The law here against frame buildings helps the clay products men and they are very strict as to this matter.

Sand lime brick has been meeting with a better sale this year than last year.

The government experts are working on the question of better roads and highways and are considering this topic from all standpoints. No doubt some method will be evolved to not only help in the construction of good roads and their maintenance, but also of more use to the government as to their use by the postal service. The parcels post is growing very fast and in time the government will handle packages up to 100 pounds. This feature of the subject is being considered when the talk of better roads is on the calendar.

Buffalo Reports Output Off, but Demand Very Good.

By HARRY S. SHERMAN.

Staff Correspondent "Brick and Clay Record."

There is on the average about $10,000,000 worth of building a year in Buffalo, which amount of work has continually drawn on the supply of clay products. The demand for common brick has been very good throughout the year and has sold at the usual prices. Some investors who have intended building have put the matter off and will probably start next year. The East Buffalo, South Buffalo, Black Rock and Cold Spring sections are building up fast and many of the houses built are of a pretty architectural type, with brick exteriors.

Face brick of rough textures have had a good sale and enameled brick have sold well. The output of all kinds of face brick has been a little under some years, but the demand has been fair all year.

The use of terra cotta, red and white, has been on the increase and the call for this material has met with a favorable response from the terra cotta plants as to increased output and superior product. There is more of this material used now than in former years. Fireproofing has also been in demand and for the erection of business blocks, factories and public buildings the call for fireproofing material was probably never as strong as it is today. With good conditions we look for a strong demand for the coming year.

The sewer pipe plant here has done very well. There has been a good demand and conditions are satisfactory all around. The plant has kept busy filling orders and the future looks bright. The demand for drain tile has also kept pace with improved conditions and advanced methods of living.

Fire brick has had a fair year, probably little less than the average sales, but it may improve considerable during the next twelve months.

The pottery plants have kept busy and the product disposed of readily. The only lines made here are dinner ware and flower pots. Both are very good, but of course the latter could be some better. The machine made flower pot has driven out of the market the old hand made product. Clay is not so plentiful in the city now and the various plants have had to move further out in the country.

Paving brick has been in good demand and its use for streets and highways has improved of late years.

Philadelphia Treats Clayworker Generously During Past Year.

By HARRY S. SHERMAN.

Staff Correspondent "Brick and Clay Record."

The demand for common brick for the year 1913 has not been really strong, but a fair trade has been done. The drawbacks, such as the new administration, the new tariff, which particularly hits Pennsylvania, the currency question, the political turmoil generally has been the cause of a decreased demand. The building lines have fallen off from that of last year. Prices have kept about the same, but possibly have not shown the usual strength.

There has, however, been a good many of the small brick houses erected, for which Philadelphia is noted. The suburbs are fast building up with these clay products as the main material. Oftentimes contracts are given for 500 to 1,000 houses at one time, while to build hundreds at once is very common. Considerable of the softer brick are used in these operations. The brick plants have kept going quite steadily and the demand has been sufficient to keep them going. Some large buildings have been erected in the line of hotels, business blocks and factories. This city being one of the largest brick centers in the country, there is always a demand, more or less. There is a surplus of brick on hand which will run into next year's use.

Several years ago there was a big strike in the building trades which lasted three years and now demands have been made by several of the trades, which promise another big strike, which would tie up all building operations. The master builders have recognized a new organization known as the "Associated Trades," which have declared against sympathetic strikes.

Face brick has had a very good sale here during the year and the call for it is always good. The demand for it from Baltimore and Washington has fallen off, but there is always a call for it from some section. Fancy rough brick, "Tapestry" and others of that nature have been selling strong. The demand for enamel brick has been growing and it is favored much in houses of the better kind. It finds a ready sale at profitable prices. There is not much call for glass brick. There is a better demand for porcelain faced brick, which is growing in popularity. The cement made brick has not had a very strong sale. Should the building operations go through that some look for, the year of 1914 ought to be a good one for face, front and all kinds of the better grades.

Paving brick has experienced a fairly good year. The demand has been quite good and the paving brick plants have had liberal orders. The output has been practically sold out up to date, the demand being strong in this city and throughout the state. The State Highway Department here specified or favored brick in several instances and good contracts have resulted.

There is a project on the tapis to build a brick motor speedway on the York road. Several men have got together and bought 500 acres of land north of Hatboro to construct it along the line of the famous speedway at Indianapolis. It is accessible to the automobilists of Philadelphia, on the line of the Philadelphia & Reading Railway and the Philadelphia Rapid Transit Co. The track would be sixty to seventy-five feet wide.

On a recent trip through Pennsylvania the writer noted some of the fine brick highways. New residential sections have been created and real estate has been enhanced in value 40 per cent. They have brought the farmer in close touch with the cities and been a benefit to all. Most of the work is done with a four-inch concrete base, a good cushion of one and one-quarter inches and a four-inch brick course with cement filler and a one inch expansion joint. Original paving is let by contract, maintenance is done by the county engineer.

The condition of the trade during the past few months makes it very probable that the new year will show an increased demand and that the various plants will be kept busy. There is an optimistic feeling among the dealers and manufacturers as to future business.

The use of fire brick has been quite large and conditions fairly good, but the plants have not run at full capacity all the year. Some months have been busy ones, other months quiet, but on the average it could be worse. There is a prospect of good demand for the year of 1914 from the steel and iron plants, foundries, coke ovens, etc. Pennsylvania is a big producer of fire brick and it is a large item in the industries of the state.

The sewer pipe demand for the year was excellent in local territory, the nearby states and the south. Prices have ranged higher, the factories have kept busy and the trade has been in a very good condition. Some good orders are to be placed for the coming new year and prospects look bright in every way. Some plants have had all they could do to keep up with the orders and furnish prompt delivery. The use of drain tile has become of more general use among the farmers, and this branch of the business admits of unlimited possibilities.

Not only the public buildings, schools, churches, hospitals, colleges, swimming pools, etc., use decorative tile to great advantage and artistic motif, but the builder of an up-to-date residence today uses this clay material as a means of promoting beauty, sanitary features and modern house construction.

The demand for tile has been active, but prices have lowered somewhat, especially the hand made tile, owing to the large amount of machine made placed on the market. Tile is in favor more than ever, especially the colored, which has come in quite strong. The less perfect it is in shape, the more individuality it shows.

The tile plants at Trenton have been busy, but some of the firms do not favor the radical tariff reduction. Much of the tile used is made to order and it is very popular made in designs of landscapes, war, county scenes, photographs and subjects of all kinds. For swimming pools it makes one of the best materials that could be devised for that purpose.

The demand for the new year is expected to be fully as strong if not stronger. The idea now is to have artistically decorated tile, showing the pretty shades and colorings so much desired.

Texas Cities Are Using Brick in Street Improvements.

By W. D. HORNADAY,

Staff Correspondent "Brick and Clay Record."

The most promising feature of the trade in the Southwest is the activity of the Texas municipalities in street paving, brick being greatly in demand for permanent street improvements. Unusually heavy rains have interfered with building operations of every kind. The floods which crippled railroad traffic for almost two weeks, delayed many shipments of structural materials and caused a tieup of industrial operations in many sections of the state. A period of favorable weather is now desired by contractors that they may rush to completion the construction of buildings which have been delayed by the rains.

While building operations have been rather quiet thus far this Winter, there has been no marked depression in the trade. The cotton crop, the great money producer of this section, is not as large as last year's bumper crop, but prices for the staple are holding up well, and probably will go higher.

A decided building boom is expected to make itself felt early next year, largely on account of the excellent prospects for a good crop in 1914. The heavy rains have put the best season in the ground in years. The disastrous floods in parts of Central and South Texas, while they inflicted heavy property damage in that section, did not affect other parts of the state, beyond interfering with railroad traffic. On the whole, the building contractors have no cause to complain, especially with such bright prospects for the coming year.

The demand for sewer pipe is good, and promises to become better. Many municipalities are planning to enlarge and improve their sewerage systems.

Brick office and business building continue to be the rule in the Southwest section. Brick is losing none of its popularity for dwellings, especially for the larger and more pretentious structures.

The citizens of Cuero are agitating an election to vote on the proposition of issuing bonds for the construction of street sewers at that place.

The city council of Temple has awarded the contract to C. C. Chapin of Kansas City for paving Adams avenue from First to Thirteenth street with vitrified brick on a four-inch concrete base at $1.95 per square yard. The work will cost about $8,500. The Santa Fe railroad will pave Adams avenue, extending over its viaduct, from Thirteenth to Twenty-first street.

The city council of San Antonio has awarded the contract for the paving of East Commerce street with vitrified brick to Bushmore & Gowdy, of Kansas City, at $2.51 per square yard. The specifications provide for three-inch fiber brick laid upon a five-inch concrete base with an asphalt filler and a five-year maintenance guarantee, with an additional five-year guarantee made by the manufacturers of the brick for the wearing qualities of the brick. This bid was awarded over a number of others for creosoted pine blocks, asphalt, bitulithic pavement and asphalt concrete. Bids will be received soon for the paving of West Commerce street which will be the second of the main arteries of San Antonio to be paved. The portion which will have to withstand the heaviest traffic will be paved with creosote blocks or vitrified brick.

A site for the $55,000 postoffice building to be erected at Cameron has been recommended by W. M. Holloway of the United States treasury department. It is expected that bids will be asked for shortly.

Bids for the site of the proposed $50,000 postoffice building at Georgetown have been received at that place by W. M. Holloway of the treasury department at Washington.

The citizens of El Paso and El Paso county will vote on January 7 on the proposition of issuing $360,000 of bonds for the erection of a new joint municipal and county building. The proposed building will cost $400,000, the county having $40,000 on hand which will be added to the amount of the proposed bond issue. A bond issue of $1,000,000 for a market house and auditorium will be voted on by the citizens of El Paso at the same time.

The city commission of Sulphur Springs has ordered an election on January 10 to vote on a proposed bond issue of $50,000 for paving the public square and streets. Brick will be considered in awarding the contract if the bond issue carries.

The commissioners court of Bell county have been petitioned by the citizens of Precinct No. 5 for an election to vote on the proposition of issuing $600,000 of bonds for the construction of roads and paving of streets in that precinct, which includes the city of Temple.

Northwest Reports Big Year in All Construction Work.

By C. F. IRELAND,

Staff Correspondent "Brick and Clay Record."

The past year passes into history, in the Northwest, as one of the most prosperous ones ever experienced, and leaves an after effect sufficient to satisfy the most exacting expectations, so far as the situation manifests itself at the close. Brick and tile construction of all kinds has shown a decided increase and popularity. More than ever before, inquiries are being made as to relative cost between this construction and frame. This is probably more so in the case of residence construction. The time has arrived at last when a prospective homebuilder begins to ask questions, his attention is invariably called to the question as to whether he wants to build a home that will endure, at slight increase in the initial cost or build a fireproof house. In either event, the result is the same, an argument between the two interests.

During the past year, so far as St. Paul and Minneapolis are concerned, one of the impelling motives for housebuilders, who build to sell to take up the tile proposition, has been the increased cost of lumber. This is only partly caused by increases in list prices, the principal gain being due to the inability of builders to secure cheap grades of lumber. This has had the effect of greatly reducing the difference between the two kinds of construction. One concern in the Twin Cities, which has built hundreds of houses in the past decade, invariably of mill construction, has gone to the tile work with hardy zeal.

There are several sources, as mentioned above, through which the ears of prospective home builders are being reached, with the result that tile and brick construction eventually receives their consideration. Much of the agitation is being stirred up, unintentionally however, by the Minnesota State Fire Prevention society. The major part of the membership of this organization are insurance men, and they are very earnest in their work. Just at present the society is carrying on an inspection in St. Paul. During the year several large fires have occurred in St. Paul, and it is said the companies have considered raising the rates. The fire prevention society comes to the rescue, however, and it is likely the rates will remain stationary. Property owners are receiving notices to remove rubbish, and in many ways decrease the fire risk.

Two state departments—the State Fire Marshal and the Insurance Commissioner are both helping the movement along, through newspaper publicity and in various other ways. In fact, fire prevention and protection are daily topics of conversation, and the ultimate result will be a large increase in brick and tile construction. The change is taking place now and the past year shows a greater amount of this construction than ever before. There has been several high-priced houses built in Minneapolis in the last nine months, and architects are beginning to sit up and take notice of this kind of construction for residences.

In North Dakota, hollow tile for residences is also gaining ground each day. Freight rates on lumber has the effect of making prices in excess of St. Paul and Minneapolis prices, and lowers very materially the difference in relative cost. Houses are being built without steel, the inner portion of the walls being hollow block, with face brick for veneer and trim, as the wants are declared.

W. S. Russell, secretary and treasurer of the Dickinson, (N. D.) Fire and Pressed Brick company, said in an interview with a representative for BRICK AND CLAY RECORD:

"We have had a good year, in fact I expect the output will total considerable more than 1912, and the indications are much better for next year than they are for 1913. Hollow block and brick, both common and face, are gaining ground each season. I believe that eventually all construction will be of fireproof material. We have had a good year in fire brick, shipping from the Twin Cities as far west as the Pacific Northwest. We have five varieties of fire clay, which is almost white. We have during the season just passed, made the hollow block in but one size, 4x8x12, but next year we will make them in sizes, 8x12x12; 5x18x12; 4x5x12, and 4x4x12, the demand being sufficient to warrant us in doing so. We have had no trade in Canada, and that section has been an off-year, so far as we are concerned. Local plants which have been established there are apparently able to fill demands and the freight rates are against us.

"We expect next year to increase our output at least a third. We have sold everything made by us this year, and expect the same results next year. In fact this has been our experience each year. One factor, however, which has developed, as a result of the late fall and the unseasonably warm weather, and has kept work going extremely late, may have some effect on one class of building in the Northwest, that of business buildings. The dry goods, clothing and shoe retailers have suffered and it will possibly result in price reduction sales, and consequently a decrease in net revenue for the retail stores, which may make the business men a little slower in building new stores."

J. W. L. Corning, president of the Chaska Brick & Tile company, of Chaska, Minn., said:

"Looking back over the year, it is with pleasure that I am able to state that our business has shown a gratifying increase, in all localities, with the exception of Canada. The situation there is different from any part of the Northwest. A boom has been in progress there and the after effects has been to lessen the demand for building material. Money is not free there and collections are very slow. We have not gone after any new business in Canada during the past year, and we are glad of it. We stopped our plant on October 15, and the last fires are just out. We will carry over but a small amount of brick for next spring. We are finding the Boss system the best adapted for our needs, with round top, down draft. We could have sold more brick this year and turned away orders, on account of not being able to ship as promptly as asked."

"Tile and brick construction in both St. Paul and Minneapolis, not only in the city, but in outlying suburban districts. one of the Minneapolis architects who has gone heavily into this kind of construction. "Especially is this true in Minneapolis, not only in the city, but in outlying suburban districts. Two new electric lines are in progress of construction, with downtown passenger and freight facilities. This is a new departure for Minneapolis and will have the effect to boom suburban home building. I predict something phenomenal in way of an increase in this kind of construction, beginning almost at once. The range in cost of houses built of hollow tile in Minneapolis has been from the cheapest to the most elaborate, showing the wide range in popularity so far."

Secretary A. W. Williams, of the St. Paul Builder's exchange, said: "The situation in regard to fireproof construction may be said to be the old, old, story, in a new way, that of dollars and cents. Whether a man who wants to build himself a home, wants something that will endure or not, he is now daily called upon to decide whether he wants a home that will be in need of constant repair and painting, or one as solid as a rock.

"There is going to be some nice big buildings requiring brick to go up in St. Paul, during the coming season. The widening of Robert street, one of the principal retail streets in the city, alone will take an enormous lot of brick, and there are sufficient large buildings arranged for to swell the demand for brick to something never before realized in one season."

Edward H. Cobb, sales manager for Minneapolis for the Hydraulic Press Brick company, and who is also president of the Minneapolis Builder's exchange, reports a large volume of business during the past year. He also is of the opinion that the coming season will show a phenomenal growth in brick and tile construction for residences. "During the years just past the volume of brick sold by us has been enormous, as compared with former years, and hollow tile is developing wonderfully in demand. The range in price of houses being from the highest to the lowest, shows the popularity which brick and tile is gaining for residence purposes. The call for face brick during 1913 in Minneapolis, has been the largest in history."

Northern Minnesota is going to prove a good place to sell drain tile in the very near future, said one of the Minneapolis bankers in an interview. "The Northern third of Minnesota is in much the same condition that Northern Iowa and Illinois was many years ago, before the lowlands were drained. Minnesota has been advertised a great deal in the past three years and the effects are marked. A large amount of land has passed from state ownership into the hands of prospective settlers. In fact the majority of purchasers are of that class. This means a large increase in population, and already agitation is on foot, for a more extensive drainage system. The state during the past year has built hundreds of miles of drainage ditches, in a scale of magnitude never before attempted."

Baltimore Falls Below Normal in Output and Demand in 1913.

By HARRY S. SHERMAN.

Staff Correspondent "Brick and Clay Record."

The brick trade for the year of 1913 has closed the season with an output and demand only about 70 per cent of normal. The season at times has been backward and at other times very good. The output has not been as large on account of a slow demand in some months and at other months there was a scarcity of labor. Prices have been maintained as usual.

There is a great deal of soft brick used here in the building of rows of houses, of one style of architecture. The disturbing elements at Washington have also militated against big business. There is, however, a large amount of building to go ahead now, with the expectation of a heavy demand for 1914.

The demand for face brick has not been as strong this year. We hope the new year will be a good one for all concerned in the clay products lines.

The demand for sewer pipe has been strong the past two years and will be for a couple of years more, owing to the large amount the city is using. This work has used most of the surplus labor market and it has at times been hard to find enough laborers to keep the supply of other manufactured products up to the demand. Drain tile has also been called for in liberal quantities, the south taking more and more each year.

Paving brick has been in very good demand on the whole, but has had quiet spells.

Fire brick has been made in Maryland in large quantities and has found quite a ready sale. The output and demand have been up to normal and will continue so, no doubt, for the coming year.

Enameled brick has had a fair sale. Glass brick has not come into its own. Sand lime brick has made a better showing than in other years and is favored by many.

Fireproofing has been in fairly good demand and will be used more in the future. The New Year ought to be a good one.

Canada Makes Rapid Progress

A period of intensive development has now been in progress for some years in Canada and a rapid increase in the production of structural materials of all kinds is shown in the annual records collected and published by the Department of Mines at Ottawa. Since this record is collected only once a year and the period of time covered is the calendar year, it will be some months yet before a complete record for the year 1913 is available, but from what is known of the activity of the industry during the year, and if the imports during eight months may be taken as a criterion of consumption, it seems safe to assume that the clay industry during 1913 has made similar records of progress to those which it achieved in 1912. During eight months of 1913 the imports of clay products exceeded in value by 13 per cent the imports during the corresponding period of the previous year.

Although this review is intended to deal primarily with clay products, it may be remarked in passing that the total value of the production during 1912 of materials of construction, such as cement, clay, lime, building and other stone, etc., was $28,794,869, an increase of nearly 27 per cent over the production in 1911, which was valued at $22,709,612; and comparing with a production valued at $19,627,592 in 1910, $16,533,349 in 1909, and $11,339,955 in 1908. These statistics should be used in a comparative rather than in an absolute sense because of the probable incompleteness of the record of production of sand and gravel and of stone.

Of the total value of these materials of construction produced in 1912 about 36 per cent consisted of clay products, valued at $10,575,869. The production in 1911 was valued at $8,359,933, thus showing an increase in 1912 of $2,215,936 or over 26.5 per cent. During the past few years many new plants have been erected both in eastern and western Canada. For the year 1912 about 459 active firms reported, as against 419 firms active in 1911, and 438 firms in 1910. The average number of men employed in 1912 was 10,415, as compared with 9,131 in 1911 and 8,656 in 1910. The total wages paid in 1912 were $4,488,957, as against $3,524,058 in 1911.

Of the several provinces Ontario is by far the largest producer of clay products, being credited in 1912 with 46 per cent of the total value of the output, as compared with 47 per cent in 1911. Quebec contributed 16 per cent of the total output in both years. Alberta about 12.5 per cent; Manitoba 10 per cent, and British Columbia 8 per cent in 1911, and 9.4 per cent in 1912.

Of the total value of the production in 1912, building and paving brick, including fireproofing, contributed $9,163,666, or about 86⅔ per cent; sewer pipe and tile production were valued at $1,242,503, or 11.7 per cent of the total. The total value of the production of pottery was reported as $426,589, of which $43,955 is estimated as attributable to Canadian clays, the balance to imported clays; the value of the production of fireclay and firebrick was $125,585. Compared with the previous year, the production of building, paving and fireproofing brick shows an increase of about 30 per cent, while the aggregate production of sewer pipe and drani tile shows a slight falling off.

The only export of clay products recorded is that of building brick, of which the exports in 1912 were 694,000, valued at $8,493, and manufactures of clay valued at $256. In 1911 the exports were: building brick, 394,000, valued at $3,997, and manufactures of clay valued at $2,071.

The imports of clay products, and of clay, reached a total value during the calendar year 1912 of $6,592,540, equivalent to about 62 per cent of the domestic production. The total imports in 1911 were valued at $5,156,544, showing an increase in 1912 of $1,435,996, or nearly 28 per cent, as against an increase in 1911 over 1910 of 19 per cent. In both years the imports have increased at a higher rate than the domestic production. Clay imports are classified by the Department of Customs under three main subdivisions, including: brick and tile, earthenware and chinaware, and clays. The imports of clays in 1912 were valued at $288,394 and included chiefly china-clay and fireclay, with a small quantity of pipeclay and other clays not classified. The value of china-clay imports was $127,402, and of fireclay $140,500. In 1911 the total value of the imports of clays was $270,247, and included china-clay valued at $125,768 and fireclay valued at $125,199. The imports of these clays have varied considerably from year to year, and do not show the same general increase as do the imports of manufactured clays. The imports classified under brick and tile were valued in 1912 at $3,209,190, of which about 28 per cent was firebrick, other important items being: building brick, sewerpipe, and paving brick. There was also an importation under this class of manufactures of clay not specially designated, valued at $818,467. The value of the imports of brick and tile in 1911 was $2,369,761, of which about 34 per cent was firebrick. The imports during 1911 of manufactures of clay not specially designated, were valued at $523,998. The imports of these unclassified brick and tile have increased steadily year by year, the value of such imports in 1905 having been only $20,804. The increase in the imports of brick and tile in 1912, as compared with 1911, was a little over 35 per cent. The imports of earthenware and chinaware, of which the most important class is tableware, were valued in 1912 at $3,094,956, as against $2,516,536 in 1911, or an increase of about 23 per cent.

Imported clay products are derived chiefly from Great Britain and the United States, although considerable quantities of earthenware, china, and porcelain ware, white granite or ironstoneware, etc., are brought from Germany, France, Austria-Hungary and Japan. Of the brick and tile imported 82 per cent was from the United States and 17.9 per cent from Great Britain; and only $2,045 worth from other countries. Of the earthenware and chinaware, 60 per cent was imported from Great Britain; 16 per cent from the United States; 12 per cent from Germany; 5 per cent from France, and considerable values also from Japan, Austria-Hungary, and other countries. The crude clays were imported principally from Great Britain and the United States.

In thirteen years Canada has imported clay products to the value of $35,396,706. The increase in imports has been most pronounced in the case of brick and tile, the imports of which in 1900 amounted to $145,914, as compared with $2,462,181 in 1912. The imports of earthenware and chinaware have almost doubled in the same time.

In 1912 the total sales of building brick were 894,371,954, valued at $8,620,229, made up of 769,191,532 common, valued at $7,010,375, or an average value per thousand of $9.11; and 125,180,422 pressed brick, valued at $1,609,854, or an average value per thousand of $12.86. In addition to the common and pressed brick there was a production of ornamental brick of 371,356, valued at $8,595, and a production of fireproofing brick and architectural terra cotta, valued at $448,853.

There were 459 active firms reporting in 1912, as compared with 419 firms in 1911, and 397 firms in 1910.

The total production of paving brick and paving blocks in Canada in 1912 was reported as 4,579,500, valued at $85,989, or an average value per thousand of $18.78, as compared with a production of 5,220,400, valued at $79,444, or an average value of $15.22 per thousand in 1911.

This paving brick is made chiefly at West Toronto, Ontario, from shale obtained from the banks of the Humber river, although during 1912 there was also a small production reported at Pender Island, near Vancouver, B. C.

The annual production has for a number of years varied from three million to over five million per season, and the output finds a market chiefly in Toronto.

The imports of paving brick during the past four years have considerably exceeded the domestic production. During the calendar year 1912 the imports were 11,793,000, valued at $160,663, or an average value of $13.62 per thousand, and included 6,709,000, valued at $95,610, or $14.25 per thousand from the United States; 5,044,000, valued at $64,375, or $12.76 per thousand from Great Britain; and 40,000, valued at $678, or $16.95 per thousand from other countries.

There are a number of clays from different localities in Canada that have been used in the manufacture of refractory brick, or firebrick and for furnace linings, etc., which have been usually termed "fireclays." These include clays found with the coal measures at Westville, Nova Scotia, and at Comox, Vancouver Island, also clays found south of Moose Jaw, Sask., and at Clayburn, near the city of Vancouver, B. C. Stove linings and other refractory clay products are made at several places in Ontario and Quebec from imported clays.

The total value of the sales of sewerpipe in 1912 was $884,641, as compared with a value of $812,716 in 1911, and a value of $774,910 in 1910. About 54 per cent of the production in 1912 was made in Ontario.

The pottery made from Canadian clays has been, hitherto, chiefly of the common grades, such as flower-pots, jardinieres, crocks, jars, churns, etc. A number of potters make a higher grade product of stoneware, but the majority of these use imported clays. Sanitary-ware is made at St. Johns, Que., and other points; but the raw material, including clays and feldspar, is nearly all imported.

The total value of the production of pottery and clay sanitaryware in 1912, according to returns received, was $427,089, of which it is estimated that the value of $383,134 is attributable to imported clays. The total value of the production in 1911 was reported as $439,264, of which a value of $336,771 is credited to imported clays. The large falling off in Canadian production in 1912 is chiefly due to the destruction by fire of a large pottery works in Quebec.

A production of kaolin was reported in Canada for the first time in 1912, the total sales being 20 tons, valued at $160. This was obtained from the deposits located on parts of lots Nos. 4, 5, 6, 7 and 8 of range VI south, township of Amherst, Ottawa county, Que., which were opened up by the Canadian China Clay Company, of Montreal.

The plant for refining the clay is situated two miles from St. Remi d'Amherst, and seven miles from Huberdeau, the terminus of the Canadian Northern Quebec Railway—ninety-four miles northwest of Montreal.—Canadian "Contract Record."

Rains Hurt English Brickmakers in Closing Months of Season.

Now that the short days and bad weather are upon the English the demand for building brick is naturally much restricted, contractors and builders being generally slackened off, and there is now, as a matter of course, no chance of any improvement until the turn of the New Year. The building trade has been affected, too, during the month just closed, by the frequent heavy downpours of rain, constructive work, in consequence, being rendered irregular.

Inquiries at the yards have come forward in a very sluggish manner, characteristic of the dark days, and signs of the usual scarcity of work at this period of the year was now visible on every hand, and with the advent of frost in the last week of the past month, the lack of employment will increase.

The numerous building schemes, in embryo, for the construction of cottages for the working classes, will give a much welcomed impetus to the small seasonal brickyards in the rural districts, and, at the same time, their provision will relieve the congestion in the smaller county towns. At Devizes, the Rural District Council has received a communication from the Local Government Board, calling the attention of the Local Authority to the urgent need for cottages in the village of Potterne, and calling upon the Council to submit a building scheme within three months. Numerous Rural Authorities in the South have similar schemes under consideration.

At Petersfield (Sussex), the Earl of Selborne, as President of the Petersfield Co-Partnership Housing and Land Society,

GEO. C. KEITH,
Editor "Canadian Clay Worker."

C. H. MILLAR,
President Canadian Clay Mfrs. Assn.

J. W. WALSH
Secretary Canadian Clay Mfrs. Assn.

recently opened a number of small houses, known as the Tilmore Gardens Cottages, which the Society has erected. The cottages are built on two separate plans; the larger, containing kitchen, parlor, scullery, three bedrooms and an outside shed, having been built for £385 per pair, with gable ends, and £360 with hipped ends, and are let at 5s. 9d. per week; the smaller cottages, with only two bedrooms, have cost £293 per pair, and are let at 4s. 6d. per week. The tenants are of the artisan class, railway employes, gardeners, etc.

While it is hard to forecast the coming season with any degree of accuracy, it might be said that there is a hopeful tone to the outlook, at least, and that brickmakers are beginning to feel a little more optimistic.

The large demand for building brick is manifesting itself and this industry has all its work cut out to make a substantial profit although expenses are rising yearly, wages have advanced, the brickmakers are well organized and do not neglect any opportunity to boom their trade.

The manufacturers of brick make all kinds of display of their product at all trade exhibitions and more especially at all the big building shows.

The red brick, perhaps, is not quite so popular, but is gradually replacing the old colored brick, which have heretofore been used, but some of the architects are showing a preference in specifying the purple brick to take the place of even the red brick.

The facing brick which is now being used to a large extent is the attractive purple gray in light and dark shades.

They are also making and have a good sale for the dark gray paving brick and sand-faced red facing brick are in good demand, but the glazed brick in brown, white, buff, cream, red, blue, black, chocolate, and yellow are the big sellers. They are in great demand for the building of asylums, postoffices, hospitals, public baths and power houses. Schools and London theatres have introduced them also, in the erection of their buildings.

Favor has also been extended to the pressed brick. About 500,000,000 of these brick are being manufactured from what is known as the Oxford clay. Some of the brickmakers find that the Oxford clay differs from the usual type and claim superior advantages for it, unlike the soft plastic nature of most Oxford clays. There are only a few feet of material varying in color from brown to green and from green to blue. Running through the different strata of this clay are bituminous layers of coal, which form a most important part in the making and producing, as they almost secure sufficient fuel to burn the brick. Further, the whole substance is impregnated with shale oil, thereby supplying yet another important factor in the production. This oil in the ground material forms the necessary adhesive property, which, under great pressure from heated dies, not only consolidates the whole, but also, with the bituminous layers previously mentioned, furnishes some of the fuel to thoroughly burn and vitrify the brick.

Germany Reports Fair Season with Good Prospects for 1914.

In many of the more important provinces there has been considerable building construction and the demand has remained steady all the season. The interest in cement stucco the past year, which caused the clayworkers some concern, is on the decline and is developing into a temporary fad just as it was predicted.

France Has Heavy Exports in China and Fancy Pottery.

While the figures are not available just now, the exports this past year in china and fancy pottery was in excess of previous years. The passage of the new tariff law by the Americans may have caused the activity to some extent.

South Africa Has Light Season in all Brick Lines.

A careful search into the conditions of the brickmakers and workers in clay, and into the buying and selling of brick for building purposes in South Africa, tends to show that in that country, at least, there is little or no prospect for the would-be emigrant who makes his living in this particular handicraft.

To begin with the commercial aspect during the past year there have been imported by the Union of South Africa only 410,078 brick of a value of £555, and of these 51,378 or £224 worth were unloaded at Cape Town, 342,700 or £304 worth at Delagoa Bay, while the remainder went to Beira or Feira, or traveled overland. From the United Kingdom the Union of South Africa obtained 16,878 brick at a total value of £48, compared with 5,000 brick or £10 worth during 1911. Not a single brick was bought off Germany, who in 1911 sent out 2,000 brick, worth £12. The United States, however, fared better, for they supplied to the colony 50,000 brick, for which they received £206, while from Portugese East Africa there came 327,200, worth £276.

Russia Encourages Clayworker by Establishing Brick Schools.

The village fire question in Russia has long been an urgent one, and is now being practically recognized as such. The terribly destructive fires that swept away villages and their inhabitants caused governing bodies to do what they could to encourage the construction of fireproof houses, instead of the wooden ones which generally constitute the dwellings of the country people. Great attention has been paid to the special branch of brickmaking, schools for which have been established in various parts of the country, so that wherever practicable bricks might be at the disposition of those about to build houses. The government's part in this movement is represented by an estimated allocation of 1,800,000 roubles, to be used in 1914 in the furtherance of brick manufacture. The sum allotted to this purpose last year was 720,000 roubles. It is proposed to construct and maintain 285 workshops for the manufacture of cement tile, of an annual producing capacity of 20,363,000 tile, and 90 brick and tile factories, with an annual producing capacity of 7,000,000 tile and 16,000,000 brick, and also to construct 185 stores for fireproof material and 490 peasant factories and workshops, and to erect specimen buildings, to organize exhibitions, and to provide lectures and issue popular literature on fire-resisting buildings and accessories.

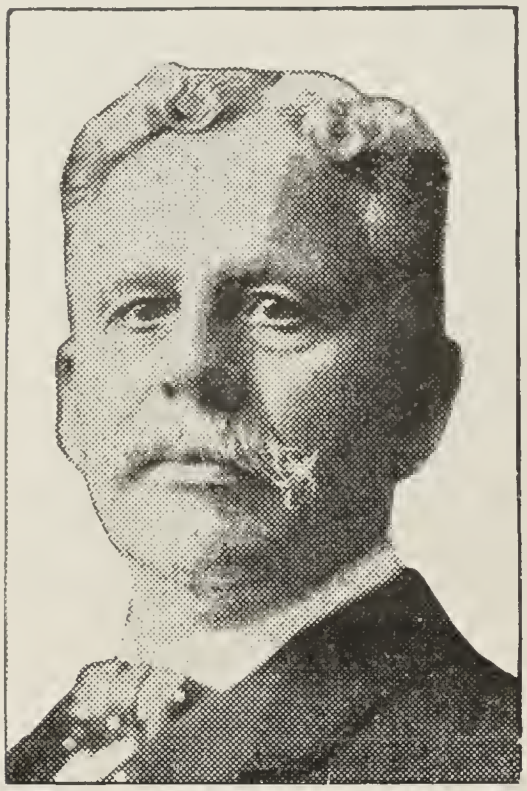
The sum of 1,800,000 roubles ($900,000) does not appear to be a large sum to spend on such an important protection for the public over so many thousands of villages as make up the country dwelling system of Russia; but, besides being a substantial sum, and a marked advance on previous efforts, it is probably an earnest of much heavier expenditures in that direction in the future, unless private initiative, which is not likely, should at once become aggressive and relieve the government of the necessity of extending its brick and tile making operations. In either case, the position is one worthy the attention of brick and tile making machinery makers in America.

Australia is Developing Heavy Ware But Little Finer Clay.

Valuable deposits of clays and pigments of various sorts are found throughout Australia. There is a considerable local production of earthenware, brick, and tile, but the finer clays have not as yet been extensively used. Kaolin of a high class has been discovered at Dunbible, near Murwillumbah, in New South Wales, but it has not been exploited to any extent. Deposits of steatite near Wallcndbeen were worked during 1911, the quantity disposed of during the year amounting to eighty-three tons. In Victoria, 371 tons of kaolin, valued at £440, were raised during 1911, of which 335 tons were raised at Egerton, and the balance at Llandeilo, near Gordons.

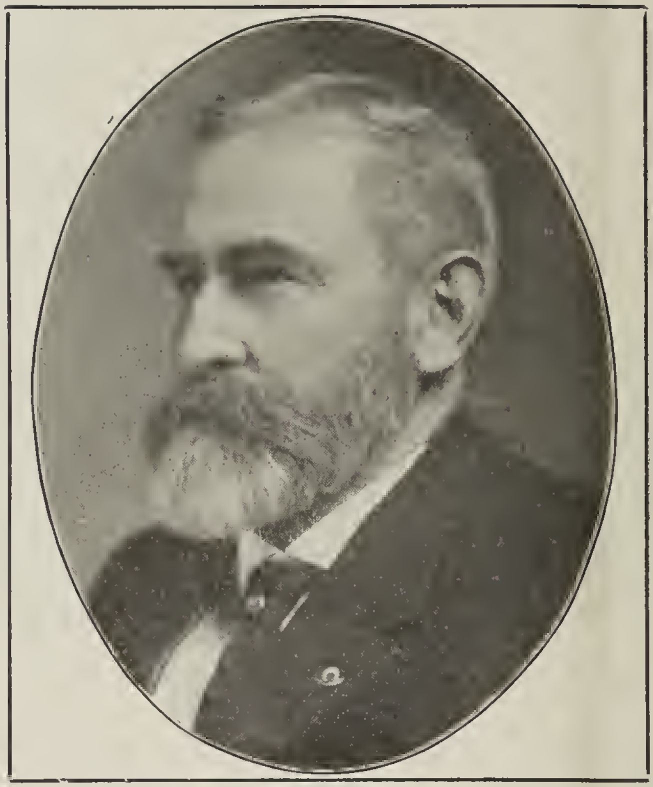
Clayworkers See Prosperity Ahead

Representative Men in All Branches of Industry Predict Larger Sales and Better Prices.



W. H. H. ROGERS, President, N. B. M. A.

> Business the forepart of 1913 was up to and a little ahead of 1912. The latter part of 1913 shows a bad shrinkage. The prospects for 1914 are not promising at the present time. There is, in fact, nothing to warrant the belief that business will be to compare with the last few years.—W. H. H. ROGERS, President, N. B. M. A.



C. A. BLOOMFIELD, Ex-President N. B. M. A.

With but few exceptions clayworkers generally report a prosperous year in 1913 and look forward to 1914 as bringing a promise of great things to the industry. The statements here made come from representative manufacturers, many of which are voluntarily given. In but a few cases is there shown a feeling that the past season has not been what it should have been to them.

It will be observed that in many of the interviews and letters sent this journal that predictions on what 1914 holds for the clayworker depended largely on what action Congress took on the currency question. These statements, as a rule, of course, were made before the Senate placed its final indorsement on the bill and President Wilson had signed it.

It is a matter of history now that the currency bill became a law and that the nation's business men —in all branches of trade, are a unit in the belief that the United States is facing one of the truly prosperous eras in its history and that there is a well-defined belief in the promise that the new legislation, by giving a more elastic currency, has made panics impossibilities.

Year Shows a Greatly Increased Demand for Denison Interlocking Tile in Central West.

By FRANK W. DARLING.

Sales Manager The Clay Product Company.

Our Denison Building Tile has shown a very great increase in sales in 1913 over 1912, and the outlook for 1914 is such that we are planning on doubling our sales of Denison Interlocking Tile next year. This, however, is not a good criterion of the building industry, as we find that the sale of Denison Tile increases. not necessarily with the proportional increase of building, but is rather displacing frame construction and a larger proportion of such buildings thus accounts for the increased sales.

It was contemplated that 1913 would be the largest conduit consumption year on record, but a very large proportion of the projected construction had to be postponed by public service corporations on account of the tight money market. If the money market becomes normal, 1914 should be a banner year for the sale of clay conduit.

C. A. Bloomfield Sees Improvements in Conditions for the Coming Year.

By CHAS. A. BLOOMFIELD.

President New Jersey Clay Products Co., Metuchen, N. J.

The year 1913 has not been a prosperous one for those in the clay products industry who have had to depend upon the erection of buildings in the City of New York. Other lines like fire brick and stove linings have not suffered. Nor does the demand for clay goods seem to have fallen off in the suburbs of our city, in fact the demand for hollow block for the construction of all kinds of buildings is steadily on the increase. The uncertainty occasioned by the change in customs duties and the contemplates enactment of the so-called currency bill has been to blame, for all the trouble and so soon as the necessary re-adjustment to existing conditions take place we shall go forward again. I already see a decided improvement for the coming year and predict on the whole a prosperous 1914.

Iowa Gets Largest Volume of Trade Ever Experienced in Its History

By H. R. STRAIGHT.

Ex-President Iowa Clay Manufacturers' Association.

The past year has seen in Iowa the greatest volume of business ever experienced in the clay working line beyond any doubt. The use of drain tile has been steady and the stocks are very low for this season of the year in spite of the deficiency in precipitation of nearly four inches of rain fall. This has been due to the realization that drain tile are a necessity sooner or later and are a benefit in dry years as well as wet.

In the building materials the demand has shown a slight increase not due to more buildings being erected perhaps, but rather to the tendency towards more fire proof and better construction which, of course, requires clay products. The use of concrete is fast being eliminated in all but the heavy columns and in places where concrete is not a treacherous material. We all realize that concrete has its place but not as a competing material with clay products.

I believe that the sewer pipe manufacturers have been well satisfied with the volume of trade they have received during the past year, although as in all clay products, the price has been ruinous. Time is fast approaching when many of the factories must in some way receive a better price for their products or go out of business. Nearly all of the factories are paying more for their labor than ever before. Coal has gone up steadily for the last ten years and yet if anything the price of clay products are lower than ever before. The open price proposition as advocated by Mr. Eddy seems to be a

Calls New York Situation the Worst in Its History.

As regards the year 1913 and that section dependent on the New York market for its outlet, conditions have been among the worst in the history of the business, and will only stand comparison with one or two years in the last decade.

The prospects for 1914 are still a matter of conjecture. The present indications are anything but promising, although the latter part of the year may bring something of interest. There has been a decided slowing up in building construction, which only time and favorable legislation can eliminate.

Jay F Ferry

"Good Road Advocates Have Recognized Brick Is Best for Country Roads"

By Spencer Duty

General Manager Beckman Duty Brick Co.

In our opinion the most striking development, in 1913, in the paving brick business has been the recognition on the part of good road advocates that paving brick is the best material for country roads.

We believe that this recognition was largely brought about by the effective work which has been done by the National Paving Brick Manufacturers' Association.

It is my personal opinion that the work done during 1913 by the Association, is by long odds the most effective work in the history of that Association.

I expect to see this work continue and grow, and, as a result of it, that there will be better constructed streets in the future than in the past

As long as brick streets are properly built, the paving brick industry will be prosperous.

Spencer M. Duty

lawful solution of the problem of better prices. We now have a committee of which C. L. Smith of Mason City is the chairman, who have been appointed to investigate the system and a report will be made shortly. We have practically adopted it in our last convention and it is the duty of the committee to work out the details for its application. I am sure that every clay worker is praying that something may be done soon, for all have expressed themselves as being willing to follow any suggestion that may lead them out of their troubles.

Co-operation in publicity matters had been tried the past year and the results are very gratifying. Our secretary, C. B. Platt has in mind some good work for the coming year along this line and results are expected especially among the building lines, that will relieve the field of any overproduction and have a good tendency towards the stiffening of prices. Taking everything into consideration, the outlook for those who have a strictly number one product is very bright but those that do not are fast realizing that the demands of the public are constantly requiring nothing but the best.

I hope for a Prosperous and Happy New Year for the "Brick & Clay Record" and wish to express the appreciation of the Iowa Clay Workers whom I had the pleasure of leading in my own small way during the past year.

Reports Largest Business in Years in Arkansas and Is Cheerful.

By W. W. DICKINSON, JR.

Manager Arkansas Brick & Mfg. Co., Little Rock, Ark.

In reply to your letter in which you ask us to give you a review of the general trade conditions in this locality, will say that we cannot speak intelligently only as to our own affairs. However, we feel that the general trade conditions throughout the state have been good. Speaking for our company, the Arkansas Brick & Manufacturing Co., will say that we have enjoyed the best business that we have had in many years. We have greatly improved the quality of our output and have added a dry press plant, and have gone extensively into the manufacture of face brick. We have been able to turn out manganese and other press brick of different shades and colors that compare faorably with any brick on the market. We have the best of clays and are enabled to make anything out of clay that can be made at any point in this country.

We are bending our energies to the improvement of our product. There is little money to be made out of building brick, as it is sold at too close a margin, but from the experience we have had we feel greatly encouraged as to our press brick and out of this we expect to make a nice profit.

We have two plants, one a stiff mud plant, and the other a dry press. Our stiff mud plant, we are told by parties who are in position to know, is one of the largest plants in the Southwest. We have a complete outfit of Chambers machinery of the largest type and have turned out more than 200,000 stiff mud brick in one day. We do not run this plant to its full capacity, for the reason that we cannot get rid of the output, but we are able to run it at a capacity of about 100,000 brick per day and get rid of the product. We have a kiln holding capacity in our Swift up-draught kilns of more than six million brick. We have a 33-track drier, 23 tracks of which are operated with steam and gas combined. The other ten tracks are of the Chambers type. These are operated by gas, having no steam pipes in the kilns. We have found the Chambers drier very satisfactory indeed. The fuel we use is gas.

We operate two dry presses, one a six-mould Ross-Kellar and the other a four-mould Andruss. We have a down-draught kiln holding capacity of about one million. These we use in burning off our dry press brick. We have recently installed a Williams Sweep Deck Pulverizer, grinding all of our clay for dry press brick very fine. This has greatly improved the quality of our dry press brick. We cannot recommend this machine too highly.

We have not run our dry press plant to its full capacity

Predicts Good Demand for 1914 For Indiana Clay Products Plants.

With the exception of the flood early in the year which put us out of business for five weeks, conditions have been very satisfactory during 1913. Building operations have been greater than usual and the favorite material was brick. Our company has largely increased its capacity through the construction of a new plant making wire-cut impervious shale brick.

Our information is that the brick plants in the neighboring towns have all had a good demand for their product, the only discouraging feature being the prevailing prices on common brick which average about $5 at the kiln.

Prospects for 1914 appear to be favorable and the present indications are that the early part of the year at least will see a continuation of the building activities maintained during 1913.

John Andres

JOHN ANDRES.

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during the past year, as it takes time to build up a dry press trade. We have been turning out about 20,000 dry press brick per day, while our capacity would give us more than double this amount. Our trade, however, on the face brick has been steadily growing and we believe that during the next year we will be forced to increase our output.

The trade conditions throughout this state have been very good. This is a new country with unsurpassed natural resources. The population of our state is increasing very rapidly. People are building a better class of houses. On account of the high price of lumber, more brick are being used and we look for a steady increase during the next few years.

Cannot Keep Pace with Sales, Says This Southern Clayworker.

By J. E. CARSON.

President Carson Brick Co., Charlotte, N. C.

Our output is sold before it is made, and there is no use for us to advertise. What troubles us is to get the "Scott System" to dry brick as fast as we can dispose of them. This same system broke us before we knew its defects, and now when we have the clay, the demand and equipment, we are so short of cash that we can not add those things we know to be necessary to make our plant one of the most successful in this section. We wish you every good and useful thing for the holidays and New Year.

Greendales Show Increase of 100 Per Cent Over 1912.

By D. E. REAGAN.

President of Hocking Valley Products Co., Columbus, O.

I do not know what 1913 has done for the clay product industry other than our own business, which requires every moment of my attention. The year 1913 for "Greendales" increased 100 per cent over 1912, when we started. In 1914 I expect to increase 100 per cent over 1913.

I wish for all of my friends in the clay products industry, a full measure of success, yourselves included.

Sees Doom of Brick Foes in Success of Burned Clay

It may be that my opinion is not in accord with the general view of the matter, but as I look at it the clay product industry has gained rather than lost throughout this territory during the past twelve months. Brick as a building material is coming into more general use; and there is an increasing tendency to discredit the use of wood blocks, asphalt and concrete for street paving purposes. This may not be true in some restricted localities, but in a general way I believe it true.

Speaking for the Albion Shale Brick Company, I am glad to be able to say that this year 1913, the first in our manufacturing operations, has treated us kindly. We have manufactured a paving block which we have been able to dispose of to the limit of our capacity in cities scattered over a wide stretch of territory, including, among others, Decatur, West Baden, Kankakee, Chicago, Indianapolis, St. Louis and Louisville; and our building brick sales have been scattered over four states. The outlook for the coming year is bright in a business way, barring an unlooked for general financial disturbance. I do not think that in any previous year so much street paving was ever planned as is now being planned in this territory for the year 1914. There has been some move toward brick-paved country roads, and our plant has this season furnished brick for one and three-quarter miles of brick road in Southern Illinois.

WALTER COLYER.

Walter Colyer

Believes New Year Will Bring Increased Business to Clay Workers.

There has been a decided impulse in favor of brick construction. People are discussing face brick, hollow brick, the beauty of brick buildings, who never before considered anything but wood. Next year I think there will be better prospects in the West than ever before, because of the probability that the currency question will be settled and settled right, and that the crops for this year will yield the largest returns of any previous year.

J. L. Stevens

Past Year has Been Prosperous and Outlook for 1914 Is Good.

By C. C. BLAIR.

General Manager Bessemer Lime Stove Co., Youngstown, Ohio.

The past year has been a very prosperous one for the paving brick interests and the outlook for 1914 seems to be very good indeed. So far as we know none of the large companies are carrying over any stock and many of them have a large number of orders which they are holding over for next season.

We believe that great progress has been made during the past year to make brick a more popular pavement, in fact, almost any discussion of pavements leads to the statement that brick is the most serviceable material, everything considered, and we can see no reason why this sentiment should not increase from year to year.

The fact that the National Paving Brick Manufacturers' Association and several of the companies are looking very carefully into the construction of pavements is going to add greatly to the prestige of brick.

Kansas Has Had Splendid Year and Next Year's Prospects Are Good.

By C. A. NALL.

Local Manager, The Kansas Buff Brick & Mfg. Co.,
Wichita, Kans.

The year of 1913 which is about closed has proven to be a very successful year for us, business done being double that of the year 1912. The prospects are immense for a splendid crop throughout Kansas for next season, and the ground having had one year's rest will result, we believe, in an increased business over 1913 just as soon as the prospects are realized. Kansas responds quickly and all they want is some assurance that there will be a crop and a good building business is bound to follow.

J. W. ROBB.

J. L. STEVENS.
Boone (Ia.) Brick & Tile Co.

The Pacific Coast Shows Sluggish Business with Decidedly Uniformly Low Prices.

By H. S. WHEELER.

Secretary-Treasurer Far West Clay Co., Tacoma, Wash.

In general, the market for clay products in the Pacific Northwest, is sluggish with uniformly low prices. This condition is accountable to pending legislation in the national capital which, we hope will be decided shortly. The opinion is freely given that business interests in general do not care vitally what is done as long as some definite decisions are soon reached. Favorable currency and railroad legislation and disposing of the Mexican problem should do much toward bettering general business conditions.

Fireproofing construction is increasing each year, and if "The best construction in the world" can increase in the heart of the lumber industry, then we may hope for the best.

Looks for Good Business in 1914 Following Successful Season This Year.

By J. W. ROBB.

Secretary-Manager Clinton (Ind.), Paving Brick Co.

The year of 1913 has been fairly satisfactory to us in a business way and we are looking forward to a better year in 1914, although there are some things which may enter into the coming year's business to disappoint us. However, we are optimists and not pessimists and look for a reasonably good year.

J W Robb

J. M. ADAMS.
Iron Clay Brick Co., Columbus, O.

Wants Magazine to Read at Home

I have your favor of Dec. 22d and I thank you very much for awarding me the prize for answering Problem No. 2 in your prize contest and for the three-year's subscription. You state you have extended my subscription three years but I beg to advise that at present I am not a subscriber. We take "Brick and Clay Record" however, for our office and it comes to the Fulton Fire Brick Company. But there are so many valuable articles in it that I cannot find time to read them all in the office and I wish a copy sent to my home. So you will please send the premium subscription **to me personally, addressing to H. G. Kiger, 302 West 7th St., Fulton, Mo. We will continue taking our copy at the office and will renew whenever it expires.**

I thank you for your offer to me for future contributions and if I have anything which I think may be of interest to other clay workers I will send them in.—H. G. Kiger.

Stops Loss of Kiln Heat.

I have a two-kiln plant operated on drain tile during the Summer months. The kilns are 20 feet and 22 feet in diameter respectively. The crowns on these kilns are built of fire brick laid headers, or, in other words, laid with one end next the fire and the other end outside making a nine-inch crown. This is coated over with a grouting of Portland cement. During the last 30 or 35 hours of each burn the kilns are fired the top of crowns gets very hot, and I lose a large amount of heat through radiation. My plan is to cover these original crowns with about 2 inches of pulp asbestos and then lay a 4-inch brick crown over the same to protect the asbestos from the weather, and, of course, supporting this 4-inch crown with an additional band at the base. I would like to ask what the brother clay workers think of the idea.—V. H. McDougal, North Robinson, Ohio.

Read "Questions and Answers" Department—your problem may be answered therein.

Predicts Less Prosperous Year for Coming Season in All Industries.

Taken all in all, 1913 has dealt kindly with the clay product industry and I believe the close of the year will find the yards of all kinds of clay manufacturers more nearly cleared up than for some years.

In this section, at least, the paving brick manufacturers have had a great year. Fire proofing companies have all been busy, and both the face brick and common brick manufacturers have, as a rule, sold their output.

Labor conditions have not been the best and will not improve until the demand for labor has become less urgent.

As to the prospects for 1914, it is a little too early to make a correct forecast. For the last two months, as you know, there has been a gradual slowing down of all kinds of business. Just how long this will continue no one can tell at the present time. If Congress would pass the currency bill and adjourn for a year, allowing the country time to digest the legislation which we already have, there would be a decided revival of business very soon.

Within the past few years there has been so much of wild and wierd legislation in many of our States, that the wonder is that capital has not been frightened from the business world long ago. The average politician and labor agitator does not seem to realize that there can be no business without capital.

From all appearances at this date my guess is that the clay working industries will not be so prosperous in 1914 as they have been in 1913.

J. M. Adams

As to Glazing Tile.

I wish to call your attention to the article that appeared in the Dec. 16 issue of your paper on page 1261 advocating that drain tile should be glazed. Drain tile may be glazed on the inside and outside at a temperature lower than vitrification will take place depending on the amount of silica in the clay, I have always understood. Of course there are other properties of the clay that effect this to a certain extent. The ends of the tile are not glazed in any of them except the top end of the top tile. This allows the moisture to find itself into the whole inside of the tile since a large number of the salt glazed tile are not vitrified. I have always thought that a tile that is vitrified throughout in not improved by glazing and a tile that cannot be vitrified readily may be improved only slightly by the addition of a glaze. Our clay will make either a glazed or a vitrified and glazed ware. I wish someone would tell me where a glaze added to vitrification would be any better.—H. R. Straight, Adel Clay Products Co., Adel, Iowa.

The Classified Ad Department where "wants" and "for sales" are listed, is worth while reading.

What the Associations Did

NEVER in the history of the clay product industry was there so much activity among the associations that are formed for the purpose of advancing and promoting the various branches of the industry than there was in the past year. In addition to the renewed interest by the older organizations a number of associations were formed during the year and these lusty young bodies, while still in their swaddling clothes, got into the battle with as much strength and energy as some of their older and more experienced brothers.

Three of the largest of these new associations formed during the year were the Refractory Manufacturers' Association, the Face Brick Dealers' Association of America and the Society of Vitrified Clay Manufacturers. The first came into being in March during the progress of the International Clay Products' Exposition, and the annual convention of the National Brick Manufacturers' Association in Chicago. The face brick dealers started their organization the following month at Columbus, Ohio. The Vitrified Clay Manufacturers, representing the national sewer pipe interests, was also a product of the clay show and N. B. M. A. convention.

Another body of clayworkers that got together during the year, and which has a national aspect and which expects to do much in a social way in keeping up a goodfellowship among the members, was the Ancient Order of Chaldeans—an organization which was formed along fraternal lines with a membership of 419.

Many city and district organizations were formed and in not a few cases revived interest was developed by state bodies that had ceased to exist only in memory.

Plans are under foot in several of the states to form new state bodies, among these being Arkansas, Oklahoma, Indiana, Kentucky, Georgia and Pennsylvania.

What these organizations have done in the past year and what their plans are for 1914 is told in signed articles below by officers.

Face Brick Manufacturers Get Better Prices and Feel Cheerful Over Outlook for 1914.

By R. D. T. HOLLOWELL.

Secretary American Face Brick Association.

AN accurate national review of face brick trade conditions would necessitate an elaborate report. Without authentic figures, our observations of the industry during the year just ending lead us to believe the production for 1913 will not be materially larger or smaller than that of the previous year.

While it would be impossible to say at this time whether higher average prices have been secured, from personal conferences with widely scattered manufacturers, it was noted in almost every instance that better prices have been the rule. Those manufacturers, whose production have been limited from one cause or another, apparently have been able to offset such loses by a corresponding increase in price.

From an "association" point of view, our prospects are even brighter than had been hoped for. With the benefit of the splendid annual meeting, held at French Lick, Ind., Dec. 10-12, all of the members of The American Face Brick Association have been brought to more clearly understand the great possibilities which are ahead of us.

The business outlook for 1914 is exceedingly bright, providing general business conditions are up to the normal level.

With practically all of the foremost face brick manufacturers working closely together for the improvement of trade conditions in general much is hoped for the part which this organization will play in the promotion of better conditions during the ensuing year and those following.

Paving Brick Men Do Great Work Past Year in an Educational Campaign.

By WILL P. BLAIR.

Secretary National Paving Brick Manufacturers' Assn.

THE paving brick industry for the year 1913 has experienced its disappointments but has also received its share of favor and prosperity. We cannot expect success with every step, even in a campaign that involves such wide and varied benefits to all classes of citizens, but our faith and confidence in the merits of vitrified brick to supply the largest demand for roads and pavement and to supply that demand in the most satisfactory manner and in a way to combine to the largest extent every quality that the public now demands in a pavement has not languished for one moment.

When we reflect that progress in everything which pertains to our welfare is slow; that appreciation of some of the best things that we enjoy is lacking; that the most meritorious inventions are often turned down—we are better satisfied with results.

We know that in 1913 a larger number of engineers, a larger number of taxpayers, a larger number of street users have come to the conclusion that vitrified brick is the most economical road material, the most satisfactory for use and costs the least money for maintenance of any road material yet offered to the public. We know that the number of converts has increased in the year 1913 beyond that of any former year. We know that cities are demanding greater sanitary conditions of streets and we know that they are beginning to realize that the proper construction of brick street pavements, the use of vitrified brick is a greater sanitary agency for the protection of health than any other one thing to which a city can now turn its attention.

We know that more farmers than ever before now know

WILL P. BLAIR,
Secretary National Paving Brick Manufacturers' Association

THEODORE A. RANDALL
Secretary National Brick Manufacturing Association

R. D. T. HOLLOWELL
Secretary American Face Brick Association

that the vitrified brick highway is the only road that will insure to them a constant condition of good repair and assurance of unsurpassed ease of traction throughout the whole year, regardless of season, weather or locality.

Above and beyond all, we know, that the students of economy in this country, we know that the most advanced thinkers in the matter of social welfare are beginning to realize that a vitrified brick highway is the only road by and through which it is hoped to bring about and to maintain in this country that intercommunication between city and country that is at all sufficient to relieve the strained conditions which hinder and delay the comfort, health and happiness of all the people in this country.

We see great stretches, red-covered with vitrified brick, laid down upon the National, Lincoln or whatever transcontinental name may designate the highway and over which many a burden or pleasure-seeking family will be bourne away to destination long before the snow flies, closing the season of 1914. The wind in the making will be wanting; the wind in its use will be enjoyed. No four flushing, but substantial and realistic is this promise.

This is what we are made to see clearly in the business experience of manufacturing and marketing paving brick during the year 1913. With this vision of actual present conditions and actual present demand, the promise of the rising sun and a bright and beautiful day for 1914 is the assured promise. It cannot and will not fail

Ancient Order of Chaldeans Plan Active Year in Formation of New Temples.

By IVERSON C. WELLS.
Supreme Keeper of the Tablet.

THE Ancient Order of Chaldeans, the fraternal society of clayworkers, which was brought into existence at the 1913 convention of the National Brick Manufacturers' Association in Chicago with a membership of 419 charter members, will take a more active interest in the social side of the clayworkers during 1914 and the plans that have been in a formulative period the past few months augur well for the young lodge.

When the Chaldeans, as a lodge, was first concieved, there was little time for the immense amount of work attendant upon the launching of a secret society of national importance, because it was decided to form the first temple at the 1913 convention.

With only a few weeks in which to make the necessary preparations the organizers performed almost herculean feats and while success crowned their efforts and they were permitted to see the new order launched in a most encouraging manner, there was much to be accomplished before the society could be declared ready for the serious work before it.

It was the intentions of the officers to spread the work of the order to every city and section of the country where clayworkers resided, but it was found to be impractical during 1913 and the original plans along this line were dropped until after the second annual session of the Supreme Temple, which will be held in New Orleans during the week of the N. B. M. A. convention.

In New Orleans it is proposed to launch the second temple of the Order and following that work the Supreme officers will put into action plans for the establishment of State Temples in every state where there is a state association of clayworkers and in every city where there is a city or district organization of manufacturers.

The Chaldeans were organized primarily for the purpose of affording innocent entertainment to clayworkers at the various conventions and the plans outlined above will be in keeping with these purposes.

A special Chaldean train is to be chartered to take members and their friends to New Orleans in March and there are many plans under way to make the second annual session of the Supreme Temple one that will be long remembered.

The ritual of the Order has been revised and additions made to it which will greatly improve the work and there are many special surprises on the entertainment program. I expect to be able to describe all these things more fully through the trade journals at a later date and also through special bulletins sent to the members direct.

I might add in this connection that the buttons specially designed and made for the Chaldeans are now ready for distribution and that upon receipt of the cost price—$1.50—one will be sent to any member in good standing. These buttons are made of solid gold and are said to be one of the neatest and prettiest issued by any secret order. Each has the emblem of the Order—the sacred man-headed winged bull of the Ancient Chaldeans in gold on a blue field in which there also are the mystic three F.'s. Surrounding the field there is a small rim of white in which is the name of the Order. These buttons will be sent any member addressing me, care "Brick and Clay Record," Chicago.

Illinois Association Accomplishes Much in Year of Organized Effort.

By A. E. HUCKINS.

Secretary Illinois Clay Manufacturers' Association.

IT IS no more than human that we as an organization should look back at this time, the last day of the year, upon things accomplished in the past and forward to things yet to be accomplished. In looking back in this, as well as in anything else, there are high spots which appear along with the lesser lights, of things accomplished, set against that smoky haze as a background, "energy expended."

The one big thing accomplished for this state and upon which this association expended no little amount of energy, was the obtaining of appropriation for the ceramic department of the University of Illinois, which when carried out, will make it the best equipped ceramic school in the world. This means a great deal to this industry and as a representative of this association I desire to thank the faithful members who put in an appearance at Springfield when this matter was up. While our presence there did not get any results from that end it undoubtedly had considerable weight.

The budget was turned over to the University trustees as a whole and it is these men and women, the present trustees of the University, whom we can thank for an increase in the budget as originally made out of $25,000 to $60,000, for the purpose of enlarging this department and putting the same in a position of undisputed supremacy.

We have thrived as an organization and the majority of our members have had an excellent year and feel very well pleased with results already obtained by this association and are looking forward, to the convention—Jan. 22-24, with a great deal of enuthsiasm. This is all very gratifying to the officers of the past and those of the present but still your present officers do not feel that they have done all that can be done or should be done and will endeavor to stimulate, by the calibre of program at the next convention, a desire to accomplish greater things on the part of the new officers when we lay down the reins.

We also wish to stimulate at this convention a spirit of co-operation of all manufacturers and dealers in clay products and make this a common meeting ground where we can establish certain relations, ethics and procedure that all will feel that they could not afford not to be a member and attend every meeting. We cannot do this without the assistance of all; we need the small as well as the biy clay manufacturer and dealer; we need the tile, pottery and face brick man as well as the common brick man. We feel that we have accomplished a great deal but when we look around us and see what like associations in competitive lines have accomplished without half the assistance, it is not very gratifying. We must do these things. We need you, Mr. Manufacturer and Mr. Dealer—every one of you—large or small. If you all come to Champaign on January 22, 23, 24, 1914, we will show you things which will open your eyes and with your assistance the officers you may elect at this time can accomplish far more than we have ever hoped to accomplish

In the spirit of this day we wish every clay manufacturer and dealer a happy and prosperous new year and we will include in these good wishes all our competitors, with a supplemental warning that, in this state, at least, they will meet with organized opposition constructed, and operated by business men on a business basis and from an organization which has the prestige of age and absolute co-operation.

Washington State Reports Conditions Chaotic and Prices Unsatisfactory for the Past Year.

By W. T. HOULAHAN.

First Vice President Washington Clayworkers' Association.

WILL I be accused of pessimism if I dwell on solid, hard facts as regards the clay industry? I could enumerate, in this district, if it were necessary, probably twenty brick and clay working establishments who are either closed down or operating on a very small scale, and existing on the hope that times will get better for them. The firm I represent has been, and is still making every effort to get out of the common brick business. Imitation, it is said, is the sincerest flattery. I might add our efforts are being copied.

We cut down our output, during the past two years, approximately 5,000,000 common brick annually, rather more than less. This alone would have caused a beneficial result were it not for the terrific slump in the demand from British Columbia. This country was taking all the brick and fire-proofing the manufacturers could spare. In several cases this meant the entire output. Now, nearly all their own manufactories are closed down, and they are scrapping for what little business there is, among themselves.

There is no immediate indication of a change. That means that we have got to find local business for more than 20,000,000 brick that was being shipped there from here, or cut down prices so low that it will be impossible for any of us to operate. That is just what is being done now.

In my opinion there are absolutely no inducements offered to continue manufacturing common brick at the present time, and this is generally the condition all over the Coast. Consult the building statistics of the several larger cities and the answer is that the demand for brick in the State of Washington alone, has gone down more than half a million dollars in value since 1907. I think we can truthfully add that the manufacturing capacity of the State has increased more than this.

I have carefully gone over the situation and make the estimate that there is two and one quarter millions invested on the Puget Sound district that is yielding absolutely no returns. I expect to have quite a lot of my optimistic competitors say that this is incorrect, and to a certain extent it is. The watchmen are getting their returns. "It is an ill wind that blows nobody good."

Having stated several causes for poor business, later on I will give other ones. Probably there are those who will agree with me in my deductions so far. There is, however, another and still more vital reason for our sorrow, and that is the fad of using concrete superstructurally instead of brick. Why is it being used? Because they have the best boosters in the world and no expense is being spared to push cement products. What are the clay men doing? (Accent on the clay, please). A little individual work is being done and in some cases by very capable men, but what good can one, two or three individuals do against a wonderully well organized army? Oh! you San Francisco! Oh, you California! (in big let-

R. L. QUEISSER

Secretary Face Brick Dealers' Association and Cleveland Face Brick Assn.

SAMUEL WEIDMAN

Secretary Wisconsin Clay Manufacturers' Association.

W. T. HOULAHAN

Vice-President Washington Clay Manufacturing Association

ters, please). What a good work is being done there by the Brick Builders' Association! I was very courteously treated, while on a visit recently, by Mr. Dennis, of the McNear Brick Company, and Mr. Edwards of the Carquinez Brick Company. I also was introduced to Nathaniel Ellery, who has charge of the work, and it is a work that they are getting results from too, in a perfectly legitimate manner.

No "bull is being peddled," nothing is being said against concrete that cannot be absolutely proven, and they certainly have incontrovertible evidence in their favor.

I was sorry that I could not have stayed longer with them. Mr. Dennis sent me an outline of what they are doing, and expect to do, also the system used. This was sent on request, and a few of us here, were going to see if we could do anything, to help the good work along, but the untimely death of Fred Harper caused a delay. Fred was the backbone of our little organization—always optimistic and cheerful, under all conditions and willing to help us do anything that was for the good of the cause. His demise was certainly a great loss to us. He did not have an enemy in the clay business and that is going some these times. He was the only one of us that this can be said of. There were quite a number of us at the funeral and a sincerely sorry crowd we were.

Conditions are as follows: Present outlook for common brick manufacturers, very poor. For paving brick, sewer pipe and other clay products, very fair, unless another slump occurs. This district is the hardest to size up anywhere. I have taken note of several expert tabulators and business forecasters, and will say that a good guesser can beat any of them as far as this place is concerned. Your Seattle correspondent, Mr. Longfellow, claims that this is so of all lines. As regards boosting, and this is the subject that keeps me awake nights, trying to plan some method that would accelerate unified action, and without this nothing can be gained. What I mean by this is that both Oregon and Washington should unite in a big united boosting campaign for clay products. Nothing but good can come of this and it will be more or less helpful to the individuals who are striving to do a little single handed work. Now any suggestions from you to help us will be very welcome.

Five years ago Henry Lohse, Sr., was regretting about the inroads concrete construction was making against brick. "Well," I said then, as I reiterate now, "'get in line and scrap it out,' and there never was a better time then there is at the present time." Everyone knows now that the stuff they have been handing out about concrete being cheaper is nothing but pure "Bull Con" and as to its superiority, that is the hugest joke of the century.

Combined action is necessary. This is not the time for any David and Goliath stunts. We ought to have a force that is physically, financially and intellectually as strong or stronger than our opponents. The Denny Renton Clay & Coal Co. are always doing all they can in an inobtrusive but effective manner. The Far West Clay Company also has done well, and we, ourselves, also do what we can in a small way, but this is not enough. Spokane, the second or third largest city in the State, does nothing. Manufacturers there do not even make good common brick. What I saw there in the yards and on the different jobs were about seventy or eighty per cent salmon brick, and if there is anything that boosts concrete more than soft inferior brick I do not know what it is.

I noticed that, according to your last issue of the "Brick and Clay Record" that Mr. Oudin is a great booster. I am sorry to inform you that the boosters in Spokane are very similar to our own—too busy knocking one another to accomplish very much for the clay industry. However, I, personally, have great hopes of beneficial results. That is, if the campaign is started in good shape and if we then have a through train from thereon, with no stopovers allowed.

I am going to send you a copy of the San Francisco plan. Now come through with your suggestions. What we want is "United Action." We, of Seattle, made an effort about two years ago to start something of this sort, but unfortunately our selection of a representative, whom we sent to Portland, was unfortunate. One of the Portlanders met him and they formed some Spiritus Frumentum resolutions which are still embalmed, and the only thing we of Seattle got out of it was the expense bill, and Portland did not even get that.

You helped us before especially in the Ford matter. Three thousand dollars worth of clay products went into that structure that otherwise would have been omitted. We furnished $356 worth ourselves. Speaking of furnishing, we have delivered some clay goods ourselves this year: Fireproofing and common brick on the L. C. Smith Building, fireproofing and common on the new Elks Building, fireproofing and common on the new Y. W. C. A. Building, fire proofing on six large school houses, 2 theatres, and three commercial buildings, front and common brick on a Sister's Hospital at North Yakima, front and common brick on three buildings in Ellensburg, front and common brick on a church in Bellingham, besides sending approximately three quarters of a million brick into Tacoma, and taking care of our small residential local business. Our output has been the largest in our history, and had it not been for the help which we got from friendly competitors we would not have been able to fill all our orders on time. And this is what I am getting at—a-get-together spirit does more for our industry than anything else possible can do.

After making our report on the volume of business done by our firm, I am sorry to have to report that I have not made enough money to buy raisins to put in the Christmas plum pudding. And I never expect to as long as the destructive war continues. The fact that you can turn in a little better report than the majority of your competitors is not very satisfactory. Enclosed you will find some clippings which are self-explanatory.

One of the clippings referred to by Mr. Houlahan is printed here. It was a letter written by him to a Seattle paper.—The Editor.

"Editor The Star: I manage a brick plant, trying my hardest to get it to pay a few dividends for the unfortunate owner.

"I noticed in last night's Star that one of the contractors, who is, justly or unjustly, accused of dodging the minimum wage law, has a brother-in-law, a brickyard owner. If he is dodging the minimum wage law, that is his reason—he has to dodge something. Nine chances out of ten, the poor sucker is keeping all his brickyard relations. Some accurate information for your last night's correspondent will be found in the following list of misplaced capital at the present time in the Puget Sound district:

"1—Denny-Renton C. & C. Co., investment over $1,000,000, operating about one-third of its capacity.

"2—Abrahamson Brick Co., investment about $75,000, operating about one-half of its capacity.

"3—Builders' Brick Co., investment about $150,000, operating about one-half of its capacity.

"4—Harper Hill Brick Co., investment about $75,000, not operating.

"5—Ballard Brick Co., investment $68,000, not operating for three years.

"6—Pontiac Brick Co., investment $50,000, operating about one-third of its capacity.

"7—Everett Brick & Tile Co., investment $40,000, not operating.

"8—Woodinville Brick Co., investment $15,000, not operating.

"9—Clear Lake Brick Co., investment $20,000, not operating.

"10—Miller Bros., Bellingham, investment $15,000, not operating.

"11—Goss Brick Co., Tacoma, investment about $65,000, not operating.

"12—Far West Clay Co., investment about $200,000, not operating.

"13—Standard Brick & Clay Co., Tacoma, factory at Bayne, Wash., investment over $50,000, not operating.

"14—Seattle Brick & Tile Co., investment $75,000, operating one-half of its capacity.

"15—Queen Brick & Lime Co., Vashon, investment $40,000, not operating.

"16—Puget Sound Brick & Tile Co., investment $15,000, not operating.

"17—Redondo Brick & Tile Co., investment about $25,000, not operating.

"There are numerous other little plants that would probably amount to over a quarter of a million, making a grand total of over $2,000,000 misdirected capital that is yielding absolutely no returns to the investors, quite a number of whom did not live through the strain.

"Just think, nearly $2,000,000 invested, and nothing coming in. I do not know the contractor to whom your correspondent refers, but because of his relationship, I would recommend that he stop knocking and pass the hat around to help him get a squar meal for Christmas."

"18—Lake Union Brick Co., investment $125,000, not operating.

American Ceramic Society Meetings are Profitable During the Past Year.

By EDWARD ORTON, JR., Secretary.

From the Annual Report of the Board of Trustees.

THE Board of Trustees report herewith the results of this year's work, the fourteenth of the Society's existence. It has been in all respects a year of growth and activity and its record constitutes an added claim to the good will and support of the ceramic industries and the respect and fellowship of the scientific world.

The removal of Mr. R. C. Purdy from Columbus to Worcester, Mass., made it seem inadvisable to the Publication Committee to continue him as the Society's editor. The energy and ability with which he had conducted the duties of the position are known to all, and most of all were recognized by the committee, who had to take the responsibility of securing a successor. The importance of keeping the editor's work in close relation to that of the Secretary at Columbus, seemed to be great enough to justify the step.

Prof. Homer F. Staley was therefore appointed editor for Volume XIV, and the Society is in position to judge how well and acceptably he has performed his work in this maiden effort. The Society has not known however that he has labored under the severe handicap of having a very incomplete and inaccurate stenographic report—the worst that we have ever received. Had it not been for notes jotted down in long-hand by the secretaries of the two sections, it would have been wholly impossible to reconstruct some of the discussions. The credit due to Professor Staley for the excellent volume which he has produced is thereby much increased.

The volume itself is the largest thus far, not only by number of pages, but by matter per page. It is full of solid meaty articles, and has brought added recognition and prestige to the Society in both domestic and foreign scientific circles.

The policy always maintained by the Society in regard to printing articles from non-members as well as members, is certainly unusual among scientific and technical organizations. The grounds for it have been two-fold.

AXEL ANDERSON
Secretary Northwestern Clay Manufacturers' Association

WILLIAM M. HANSEN
Manager, Chicago Paving Brick Publicity Bureau

C. B. PLATT
Secretary Iowa Clay Product Manufacturers' Association

1. The paucity of able contributors to literature in this field. The number of well trained men in the ceramic industries whose positions have been such as to leave them free to write of what they knew, has been small and still remains so. It has, therefore, been our constant effort to attract and bring into touch with us scientists working in all of the adjoining fields, such as geology, mineralogy, chemistry, physics, mechanical, mining and chemical engineering, and so forth, whenever we found one of them whose interests had perchance strayed over the borders of his own domain and into that field which we have preempted and have been working diligently to cover.

2. Our conception of the Society's duty to the industries which it serves, has been that it should get together and put into print as speedily as possible the great body of knowledge possessed by those who are actually doing the ceramic work of the world, without much regard to the personal questions as to who is to receive the credit for it. Our industries are most of them old, and most of them have been and still are administered upon the mistaken policy of secrecy as a necessary condition to success. Very few practical ceramic chemists or work managers will tell what they know of their own branch of the industry. Some of them, however, have worked in different branches of the industry, and can be induced to tell their experience in a branch with which they no longer have connections; and thus by getting a little from one source at one time and from another source at another time, the whole great mass of technical knowledge is slowly but steadily being uncovered, assorted and recorded, and a literature worthy of the name is being created. This is the real raison d'être for this Society.

One cannot contemplate this plan without realizing that our duties are world duties, and not in any way restricted to the narrow circle of our own membership. It is, therefore, now, as in the past, the object of our Society to attract to its meetings and to the pages of its volumes, any and all who have anything new to say in this field. We want them as members, of course, if we can get them, as we need their financial help; but that is after all a secondary matter and by no means a ground for failing to secure and use their store of knowledge when it is open to us.

The membership has grown this year, but not so vigorously as before. The considerable number of losses during the year is a cause for regret. tI is not to be expected, however, that as the Society grows older and larger, its entire membership can be held as firmly together by the ties of personal regard as was the case in its earlier years. There will of course always be some whose industrial affiliations change and those who do not longer find it profitable to maintain membership. It should be possible by another year to bring up our membership to the 500 point without resorting to active solicitation, or other undignified means.

The increase in dues and the opening up of a new source of revenue from contributing members has made this year the easiest through which the Society has passed since our work assumed anything like its present proportions. The increased rate for dues has met with no complaint from any quarter.

The stock of volumes of the "Transactions" remains approximately constant, the shrinkage by sales of the old volumes being just about covered by the excess supply of the new volume. There are now left less than 100 sets, and only about 125 nearly complete sets could be furnished. Members who have not yet procured a complete file are advised to do so while there is yet time.

According to the plans proposed at the thirteenth meeting, the Summer meeting was arranged so as to be coincident with the trip of the members of the Deutcher Verein für Ton-, Zement- und Kalk-Industrie who were in America for the meetings of the Eighth International Congress of Applied Chemistry. Circular No. 6 (Series 14), issued August 19, 1912, announced this plan to the membership and their response was quite satisfactory.

The American Ceramic Society members to the number of about 30 met the German Society members to the number of about 18 at their hotel in Pittsburgh, on Saturday evening, Sept. 14, and escorted them to the Fort Pitt Hotel and enjoyed a delightful banquet together. Speeches were made in both languages expressing the need of a closer bond of acquaintance and co-operation.

This function was the only one in which the two Societies met with any formality, but members of the American Ceramic Society met and escorted the visitors at Pittsburgh, East Liverpool, Zanesville, Columbus and Chicago. The German delegates have expressed on frequent occasions and in various ways their appreciation of the courtesies extended, and without doubt the incident has created a much more cordial relation than has existed previously.

One more or less direct result of this meeting has been a proposal emanating from the German Society, that the presiding officers of each society shall be elected to membership ex officio in the other. The Board of Trustees concurs in the sentiment involved in this plan, and if a method can be devised in harmony with our rules, or that can be legalized by a simple amendment, would like to put such an arrangement into effect, not only for the German Society, but for the English Ceramic Society as well. The Board would appreciate an expression of opinion from the Society upon this topic.

The Summer meeting last year being merged with the visit of the German delegates, did not take the place of, or fulfill the real function of this part of our work. It becomes of increased importance, therefore, that the present summer shall not pass without an excursion trip being energetically organized.

The Board desires to express the hope that the coming year will prove a more active and vigorous one than the last, and that each member of the Society shall not feel himself absolved of personal obligation to do his share to make it so.

Terra Cotta Society Works Out Publicity Campaign for 1914 and Issues Text Book.

By W. D. GATES.

Secretary National Terra Cotta Society.

THE work of this society has been in the line of increased publicity for the purpose of affording information as to the proper use of our material and, consequently, increasing such use. The experience and knowledge of the different manufacturers, in matters of best methods of construction, has been concentrated, criticised and put in shape so as to be available and useful. Drawings have been made and, for the past year, have been passed around for criticism, and an elaborate and comprehensive text book is thus being prepared which, it is anticipated, will take its place as authority. As it is in no sense an advertisement of a particular company, but is to go out as the work of the society, as a text book only, and without any advertising matter, and as a work on which money and thought have been spent without stint, it will fill a long-felt want, particularly in the architectural schools, architectural clubs, and among the architectural profession generally, where the need of such a work is felt.

Much work has also been accomplished in the line of uniform contracts and specifications as well as in the matter of the collection of statistics.

Plates showing present methods have been published in the "Brick Builder" and competitions for prizes in design given which have resulted in much good.

Pay $15 and get a Life Insurance Subscription Policy to "Brick and Clay Record."

Fire Brick Men Standardize Product Through Association.

By JOHN H. CAVENDER.

Secretary of The Refractories Manufacturers' Association.

THE Refractories Manufacturers' Association, although less than a year old, having been organized in Chicago March 6, 1913, with only 13 plants represented, is a healthy youngster for, while still in its swaddling clothes there are 52 plants in the membership, representing a capital investment of more than $130,000,00, or about 90 per cent of the country's output in refractories.

Probably the standardizing of the product might be classed as the most important achievement of the new association. By standardizing the 9-inch and 9-inch series of shapes 28 shapes now serve the purpose that 80 or more did formerly. This, of course, ends the confusion and assures uniformity of the different specific sizes and shapes as made by the members where there was so many variations of size and designation of the same shape.

We have now under way another very important work in the active movement to co-operate with the American Society for Testing Materials to standardize the qualities of various refractories for the diversified uses. This will require a great amount of research work and a number of clay tests from every section of the country as well as from many foreign countries—all of which will result in a most thorough familiarization of the members with their products.

Other important work planned for 1914 will be in traffic matters, insurance and specifications for materials.

As a whole the refractories had an excellent year in the past twelve months, although the slump in steel made an appreciable difference near the close of the year. The outlook for the coming year is very encouraging and our membership is looking forward to a good healthy season for business.

Cleveland Face Brick Publicity Increased Sales Fifty Per Cent.

By R. L. QUEISSER.

Secretary-Treasurer, The Face Brick Dealers' Association and Cleveland Face Brick Association.

ABOUT two years ago the Cleveland Face Brick Association began the cultivation of an increased use of its material. Perhaps it would be better to say that it began the preparation of the ground for the cultivation, as the first year, at least, was in the nature of pioneering. It would be a fair simile to say that the ground alloted the association for cultivation was a stump lot—there was timber everywhere. As far as the situation in the city of Cleveland was concerned, the association faced the climax of an era of frame building. How well the association has succeeded is indicated in the report that the use of face brick in the Cleveland territory has increased fifty per cent during the year just closed.

Cleveland, like the other cities of the Great Lakes, has been a cheap lumber market. A condition considered fortunate in its early days now proves to be a misfortune. That no fire has come to wipe out its primitive construction, as it did in Chicago, is a favor of fate, but the old, firetraps remain a menace to the safety of the entire city and will until the extension of fire limits and the gradual rebuilding replaces them with brick structures.

Thus the Cleveland Face Brick Association was born in a field broad in opportunity but rather "set" in its ways. The first year's work was largely educational. About a quarter-page of space was used in one of the Sunday newspapers of the city for fifty-two consecutive weeks and each week a new argument—or an old argument newly stated, was printed to teach the community the economy and manifold advantages in comfort of the home of brick.

Each advertisement of the series carried the name of the association and the names and addresses of the brick companies comprising the association. No special trade name was mentioned in any of the advertising. It was entirely general in its boosting for brick. The campaign cost about $3,000 and it was bread cast upon the waters as the results now are proving.

An important result of the activities of our association is the stirring of various civic interests to the advantage of fireproof construction. While it was purely a brick man's battle at the beginning and many could see only a selfish motive back of it, it has now assumed the magnitude of a movement for safer building. Since this Association became active the city of Cleveland has established a bureau of fire prevention with Assistant Fire Chief Whyler at its head and firemen at each station detailed to this work exclu- to the load and 16,000 to 20,000 per day. This would make Councilman French as its chairman and this organization is giving serious study to the planning of small, inexpensive fireproof homes. The insurance men of the city have shown new activities and the leading newspapers carry daily an insurance column in which fire prevention and safe building is a foremost subject.

While we do not take credit, directly, for all these activities the Association was the first in the city to consistently advocate a higher grade of building. Architects and builders read our advertisements and the literature we distributed and they report that the inquiries regarding brick are rapidly increasing. There are several instances of prospective builders asking for comparative bids showing cost of frame, stucco and brick construction. In this bidding contractors have confirmed our contention that brick costs only from six to twelve per cent more than frame and with this small initial increase it is easy to convince the builder that the saving in paint and repairs, in fuel and fire insurance completely wipe out the first cost difference in six years.

We have taken advantage of the experience of other cities where similar comparative tests between brick and other construction have been made. Publicity has been given to the fact that houses actually fireproof have been built in Boston and in Minneapolis for less than $2,500. We find ammunition for our campaign in every issue of "Brick and Clay Record" and we use it.

What we have done we believe any community of brick manufacturers may do in their localities. The public should be educated in the advantages of brick; they should know that the methods of using brick have so improved that all the faults of the old solid-wall houses have been eliminated. We have a material that has stood the test of centuries—the only indestructable building material in existence. The strides made in the manufacture of face brick have produced material that lends itself to the greatest variety of treatment. The most attractive homes in any community—the show places—are homes of brick and with the great variety of colors and textures there no longer is monotony in brick construction.

Economically, sanitarily and hygienically brick is better than any other material for the outer walls of the residence and we have made it the mission of the Cleveland Face Brick Association to put these facts before the building public as forcibly as we are able to do.

Now there, in conclusion, let me say just a few words in regard to the prospects for 1914. Let me, perhaps, moralize a little. There are just two factors or conditions that will make for prosperity or the reverse. One is capital and the other labor. The first may be put forth or withheld just as, what is termed, "the interests" determine; the second may, if the money condition is made easy, by unreasonable demands "kill the goose that laid the golden egg." It is quite sure that at present everything points to a prosperous year, yet if it does not come, it will simply be an unnatural and a "forced" condition. Every one has read "Pigs is Pigs" and that can be applied easily to the human race, all that read this have but to look about and see the play fellow or girl of their youth dangling their grand children on their knees, and with each generation the spread of the genealogical tree throws out more branches and hundreds of shoots and so the race, in numbers at least, progresses. Now then, they must be housed more schools erected more offices must be provided, more factories built and "brick" is the final word for the material for all of these.

The uncertainty of the result of the tariff revision, as yet, the unknown effect of the Currency Bill will tend temporarily at least to curtail building promotion but when both of these are put on a stable footing then will come a boom for building the like of which this country has never before experienced. At the same time will come again the question of the attitude of labor, and it is my opinion that the latter is more to be feared than the former. In other lines already there is a great disquietude—as a result mills are closing, railroad shops are shut down and one general manager of a great Cleveland corporation but a few days ago said "they would be 'forced' to lay off their great force of workmen simply as a preservative measure."

Let us hope that the cool, calm, conservative judgment of the leaders of the labor masses may so influence their forces that there may be a perfect understanding between them and their employees that all may jointly share and mutually benefit through a perfect system of the understanding and application "of the rights of the other man." Let us seasonably wish "Peace on Earth, Good Will to All Men."

EDITOR'S NOTE—Mr. Queisser also was asked to prepare a review of the work done by the newly organized Face Dealers' Association of America, of which he is likewise the secretary and treasurer, but his article did not reach us in time for publication. We regret this as the new association is doing a good work and an account of the same would be interesting.

Builders Bureau Does Great Work in Past Year for Manufacturers in San Francisco and on Coast.

By NATHANIEL ELLERY.

Manager Builders' Bureau, San Francisco.

THE organization of the Brick Builders' Bureau of San Francisco was effected in June 1912 under the auspices of the common and face brick manufacturers, the terra cotta and tile manufacturers, the erectors of structural steel, the Masons and Builders' Association of San Francisco and the Union of the brick-layers of the same city.

It was designed for the general benefit and advancement of the clay industry and meant the dissemination of educational and promotional work of a character that would inspire the confidence of owners and builders. This work started at a time when brick construction in and about San Francisco was sorely in need of advocates not on account of any lack of real building value but for the reason the field of construction was invaded by another material—concrete which for a while, the layman and many technical men about concluded had a use fit for anything to be built. Strong effort was necessary to place brick back in its properly deserved position in building work and stronger effort was necessary to combat the impetus given the constructor's pseudo panacea. The Bureau's work largely aided by time with its telling effect on concrete building construction is solving the problem for us.

During the past year the Bureau has issued two books of high-class character; three pamphlets, four magazine articles, has written nine thousand letters for brick and the manager has lectured three times on construction. Aside from this the manager has seen many owners and discussed with them contemplated construction.

General technical advice is given gratis to all who desire to call at the offices of the Bureau and special effort is made to get to the real value of materials of construction that they may be rated on merit. The Bureau has expended over twelve thousand dollars to accomplish its aims and I believe it safe to state much good resulted.

Near the close of the year, Nov. 22, 1913, a banquet was given by the Bureau to bring together the men of the organization in order to more strongly intrench our workers for the cause and endeavor to extend our field of operation. We desire to increase our mailing list of about four thousand and bring all of California into our work.

A most vital matter was settled at the meeting of the brick and clay people on the foregoing date. The size of brick has been a sort of nightmare to all concerned in its manufacture or in any way handling this material, and general dissatisfaction prevailed on account of the promiscuous sizes of brick entering the San Francisco market. We have been in great need of a standard brick and at this successful meeting of the Bureau there was determined and adopted a standard size, 8⅜ in. x 4 in. x 2⅝ in.—to apply to common and wire-cut pressed brick. The settlement of this question is of vast importance to all interested and means a much better condition in every phase of the industry.

The Bureau is making a determined campaign to win the fair recognition brick deserves in the building world and by co-operation, harmony and solid effort we will win.

Iowa Association Accomplished Much in Creating 1913 Demand for Clay Products.

By C. B. PLATT.

Secretary Iowa Clay Products Manufacturers' Association.

THE Iowa Clay Products Manufacturers' Association has, perhaps, been instrumental in keying its members up to publicity moves which have resulted in good business for drain tile during an average dry season. We have held regular meetings which have been generally well attended. In these meetings we have discussed ways and means for increasing the demand, exclusively.

Most of the publicity work has been confined to the individual manufacturer, although the Association has done several hundred dollars' worth of general advertising.

We have in preparation a general book on farm buildings which it is proposed to circulate through the members' mailing lists, and it is also proposed to form clubs of ten to twenty members, which will subscribe for a given space in farm journals. The name of each subscriber will appear in such advertisements.

On the whole, prices have not been quite satisfactory during 1913, particularly under circumstances prevailing, which have materially increased cost.

We have the "Open Price" question under consideration and hope to see this under full action in Iowa before long.

It seems to be the idea of Iowa clay products manufacturers that there is a great work to be accomplished through associations which does not begin and end in conventions—and when I say that this Association is interested in seeing a high standard of quality maintained in clayware; is interested in determining what materially affects the cost of production and how the public can be interested in using clay products more extensively—it follows that this is the idea of the individual manufacturer.

Iowa is a strong association state and I can truthfully say that the clay people are boosters and progressive. Those who are not—if there be such in Iowa, are outside of our Association and probably will remain where they are.

I can say I am optimistic as to the outlook in our Association affairs and also in regard to the future growth of the clay business in Iowa. What of 1914? We answer out this way—"Always something doing."

Wisconsin Association Fights for Adjustment of Freight Rates.

By SAMUEL WEIDMAN.

Secretary Wisconsin Clay Manufacturing Association.

THE Wisconsin Association very generally meets in Milwaukee, as this city, the metropolis of the state, is most easily reached by the members. At the last annual meeting the following officers were elected: President, John Ringle, Wausau; Vice-President, A. W. Hilker, Racine; Secretary, Samuel Weidman, Madison; Treasurer, Oscar Zimball, Sheboygan.

One of the important phases of work accomplished by the Association during the past year was the preparation and installation of the Wisconsin exhibit at the International Clay Show in Chicago. The movement for the organization of the exhibit was started at the annual convention. M. F. Vogt, of Milwaukee, was placed in charge of the installation of the exhibit and Secretary Weidman collected the funds from the various subscribers who had agreed to finance the undertaking. The following brick manufacturers subscribed to the required fund and exhibited brick panels:

Burnham Bros. Brick Co., Milwaukee; Standard Brick Co., Milwaukee; Hilker Bros. Brick Co., Racine; Oscar Zimball Brick Co., Sheboygan; Wachter Bros., Falls Brick & Tile Co., Sheboygan Falls; S. Gunther Brick Co., Port Washington; Excelsior Brick Co., Menomonie; John Ringle, Wausau; Jefferson Brick & Tile Co., Jefferson; Kemmeter Bros., Jefferson; Cook-Brown Lime Co., Oshkosh.

The above list is our roll of honor, for to these members the Association is indebted for a proper representation of the State and for materially aiding in giving greater publicity to clay products in general.

For many years the Association has interested itself in the matter of adjustment of freight rates on brick and tile. It will be recalled that the Wisconsin Railroad Commission in 1911 ordered a reduction of about 30 per cent in freight rates on brick and fixed a joint rate when shipped over two roads of one cent per 100 lbs. additional. As tile is of lighter loading capacity than brick and a certain amount of breakage is involved, rates on tile were not changed but left to subsequent hearing before the Commission.

During the past two years, therefore, while brick has had the advantage of reduced rates, drain tile was shipped on the old rates and many of the tile factories were seriously handicapped on account of inequalities in the rates and lack of joint rates. On account of several complaints of shippers during the early part of the season it was decided by the officers of the Association to bring the matter of rates on tile to the attention of the Railroad Commission and accordingly a formal hearing was held on May 27th in Milwaukee, at which hearing the leading railroads of the state were represented, the Association being represented by Secretary Weidman and the Burlington Brick & Tile Co.

After stating the various causes for complaint the commission was petitioned as follows:

"First, we ask that rates on tile be fixed in 5 mile distances up to and including 300 miles, such rates not to exceed 10 per cent more than the rates on brick now in force.

"Second, we ask that joint rates on brick and tile shipped in mixed carloads be fixed in 5 mile distances up to and including 300 miles, such joint rates to be the same, pro rata, as the single rate on brick and tile.

"Third, we ask that joint rates on tile and mixed cars of brick and tile, in shipments over two or more lines, be fixed, such joint rates not to exceed one cent per hundred pounds higher than the rates fixed on one line."

After due hearing and investigation we ask that equitable rates be fixed and an order given requiring the carriers to conform thereto.

On account of the unusually large amount of work presented to the commission during the past Summer a decision on our complaint has not yet been rendered. The commission has authority to investigate all complaints through their own experts, and while due weight is given to statements of both parties to complaints, and all available information from each party is sought, the final decision rests largely with their own findings in each case.

The matter of fixing rates on an important commodity over the entire state is obviously of much importance, not only to the shippers and carriers, but to the consumer, and the commission is inclined to weigh fully all the interests and factors involved. In case the parties interested are not satisfied with the decisions or feel an injustice is done them, a rehearing may be held, and if the decision is still unsatisfactory, an appeal to the courts can always be made as a final resort.

The Commission has promised a decision on our complaint soon, and hence it is fully expected that results will be known at the time of our next annual meeting, January 29 and 30.

Wisconsin is a pioneer in the movement for industrial education and as a result of the development of the system in this state it is possible to organize courses in bricklaying in all those schools of the state, in cities of more than 5,000 population, where there is need or demand for such courses. The Association has always supported the movement for industrial education, and now that the system is in operation it has offered to assist teachers and industrial boards in organizing courses in bricklaying. This is only the second year of state assistance in industrial education and but little headway can be reported. However, at Beloit, a successful course in bricklaying has been in progress for several months, 14 men being enrolled in the course, practical instruction being given by a skilled bricklayer. It is well known, of course, that for six or eight years bricklaying has been taught with growing success in the Stout Training School at Menomonie. In the organization of this department at Menomonie our former secretary Oscar Wilson, gave strong support and material assistance.

It is the policy of the Association to have members look after the development of courses in bricklaying in their local schools, by working up a sentiment for such courses, giving such assistance to the school superintendent as may be needed, and furnishing the brick free of cost for organizing the courses. In many cases the secretary has gratuitously offered all this without formal promise of assistance by the local manufacturers, but it is more than likely that the local manufacturer will be loyal when the opportunity to render aid is offered.

There is no doubt that more men trained in bricklaying is desirable and that a better aypreciation of the art by both bricklayer and builder is greatly needed in this country today. The members of the state association should fully realize the importance of the present situation and support the movement for the training of bricklayers in every possible way.

An account of the work of the Association is not complete without due reference to the annual convention. The brick and tile manufacturers of the state should not overlook the fact that a rare opportunity is offered them to meet their fellow craftsmen at their annual gatherings, become better acquainted and learn from one another matters of importance concerning processes of brick manufacture and the conducting of their business. Very generally outside talent is brought into address the conventions and discuss the subjects of manufacture in practical and scientific ways. The work of the Association would be far more successful if it were supported by all the manufacturers of the state instead of only the relatively few who loyally support the organization.

Chicago Publicity Bureau Boosts Paving Brick Profitably in 1913 by Clever Field Work.

By **WILLIAM M. HANSEN.**
Manager Paving Brick Publicity Bureau.

THE Paving Brick Publicity Bureau began its operations in the City of Chicago during the early part of 1912, and while that year was a fairly satisfactory one, the real results of our efforts in the promotion of vitrified brick did not appear until this year.

During the twelve past months there has been slated for improvement with vitrified brick nearly three times as much work as compared with last year. This, of course, refers to improvements which will not actually be made until 1914.

During the past year over twenty-eight miles of streets and alleys have been improved with vitrified brick in the City of Chicago, which is nearly twice the amount of work which was done last year.

We are assured of a very satisfactory condition during the coming year, and we will endeavor in that time to keep up the good work which has been started and maintain the ratio of increase, or, better still, improve upon it if possible.

Sand Lime Association Boosts Product Through Monthly Bulletins Issued by Secretary.

By **W. E. PLUMMER, JR.**
Secretary The Sand Lime Brick Association.

The work of this association is largely done by the individual members. The president, vice-president, secretary, treasurer and five district heads make the executive committee, upon whom all responsibility rests during most of each year. The association meets annually, second Tuesday and Wednesday of December at some place usually determined at previous annual meeting. At these annual meetings a large percentage of our members are present. A program is arranged with prepared papers upon subjects upon which the speakers are well qualified to speak and are largely along the line of "Techniques" as referring to our industry. We also at these meetings for several years have gone more and more into "Publicity." At these meetings each year, after discussion, plans for publicity for ensuing year are adopted.

Conventions and Meetings

CONTRARY to precedent established many years ago—in some cases nearly a quarter of a century ago, many of the major clay product associations broke away from the parent body—the National Brick Manufacturers' Association, and held separate conventions. The American Ceramic Society was the first of these, it holding its meeting in Washington early in the year and planning to hold the 1914 meeting some time this month and probably at Wheeling, W. Va., or at East Liverpool, Ohio. The next important association to pull away was the National Paving Brick Manufacturers' Association, which held its annual session at Cleveland in September. Other meetings followed by the American Face Brick Association and the Face Brick Dealers' Association, which met at the same time and place—early in December, at French Lick, Ind.

The Refractory Manufacturers' Association, the Society of Vitrified Clay Manufacturers, the Western Paving Brick Manufacturers' Association, and the Eastern Paving Brick Manufacturers' Association are yet to hold their annual sessions but have announced them apart from the parent body.

The decision of these associations to hold separate conventions was not taken until after deliberation, as it meant the severance of pleasant ties of many years' standing, but when the step was taken it was made plain that it was but for one reason—to give each association a better opportunity to develop its individual policies.

The National gatherings of the past have drawn many hundreds that possibly would not have attended but for the magnitude of the affairs, but the minor associations found that the greater events overshadowed them and that it was almost impossible to get quorums present, although comparatively full memberships were present.

The parent body—it so happens, draws its membership from all branches of the industry. The minor bodies—standing for the distinctive work, drew only their members from the industry they represented.

The success of the National Paving Brick Manufacturers' Association in its Cleveland meeting and that of the two face brick organizations at French Lick recently, prove the value of the steps taken during the year and emphasizes what has been held by the advocates of the system—that the separate meetings will not detract from the parent body and that a far greater good may be accomplished because of the greater field developed.

The minor organizations have been formed for a different purpose than the major body—devoting their energies to the commercial end chiefly, while the parent body concerns itself about the manufacturing end.

The various minor organizations, in adjourning, do so to meet in a social session with the N. B. M. A. in March when that body holds its Twenty-Eighth convention at New Orleans.

The minor organizations have been, practically, reorganized during the past year, inasmuch as they have recognized the importance of practical work if they wish to teach the world how to use clay products and have drawn forth their musty constitutions and by-laws and put into active use the well-planned ideas contained therein but which had been forgotten.

As an illustration of this point attention is called to the National Paving Brick Manufacturers' Association. In prior conventions little was ever accomplished of actual value in the open conventions other than the reading of a few papers. What work was planned had to be done in directors' meeting or otherwise. When the decision was made to turn over the annual meetings to a publicity and promotion work in which all the state, county and municipal engineers and other officers were invited to participate, a great step forward was taken.

The meeting of 1913 was just such a meeting and was one of the greatest educational programs ever carried out by a clay product organization.

Similar meetings conducted by the face brick men, the hollow tile men, the drain tile and sewer pipe interests and all the other branches would do more to acquaint the actual users of building and constructive material with the permanent material—burned clay, than any other one agency.

The outlook for the coming year among the various associations is encouraging and the meetings that are scheduled undoubtedly will be the best attended in years.

N. B. M. A. Goes to New Orleans
March 2-5 for 28th Convention

By THEODORE RANDALL.

Secetary of National Brick Manufacturers' Association.

(From the Official Announcement.)

For the first time in the history of the association a convention ballot was recently taken, that the members might express their own individual preference for our next place of meeting. The result is most gratifying in that the ballot shows an unexpected unanimity of choice, New Orleans receiving three times the vote accorded any other one city. Indianapolis was second choice by twice as many votes as were cast for the third choice, Buffalo.

The ballot is gratifying in another sense, for it demonstrates anew that our association is all that the name implies, a national association which is not restricted to any narrow geographical limitation, and that the members comprising the progressive, broad-minded clayworkers of the land, love to fraternize with their fellows from every section of the nation, preferring to visit the various representative cities of our country, rather than be restricted to a limited, though central, territory. Heeding the lesson of the ballot, it is a safe prophecy that the association and its auxiliary and allied organizations will in the future have an even wider sphere of usefulness and influence than in the past.

New Orleans is one of the most attractive cities in America. It has made remarkable growth during the past decade, and today combines both the modern and the antiquated in its architecture and general characteristics to an extent not found elsewhere. The old French Market and its quaint surroundings and the many ather points of interest appeal to all sightseers, both young and old. Its semi-tropical climate makes it an ideal winter and health resort, and its great annual festival, the "Mardi Gras", has made it the mecca of thousands of fun lovers for a generation or more. The carnival is characterized by gorgeous parades and various social functions and entertainments, which are held preceding the first day of Lent. During this period King Carnival reigns supreme. The merry-making continues for the better part of two weeks, and in response to the wishes of our members, our convention will be held March 2-7, the week following the Mardi Gras carnival, so that those who desire to witness same can go to New Orleans a week in advance of the convention. Quite a number have also expressed a wish to make a side trip to Panama to see for themselves the wonderful achievements of our army engineers in joining the Atlantic and Pacific oceans, while others may prefer to side trip to Havana, Cuba.

Naturally a city of so many attractions has a number of fine hotels. The largest and most modern of these is the Grunewald, an immense fireproof structure, the terra cotta walls of which are conspicuous in the sky line of the city. Its cuisine is famed throughout the land. Its "Cave," for so its grill room has been christened, is unlike any other restaurant in the country. A rather blase traveler recently said that he considered it the most delightful place to dine he had found anywhere, at home or abroad. Because of its great capacity and many charms, the Grunewald has been chosen for headquarters during the convention. It affords ample convention halls, a splendid banquet room and all other needed accessories. Its lobby and mezzanine floor are both spacious and beautiful, making it a charming haven of rest after a day of sightseeing. It is operated on the European plan exclusively and grants the following rates to all members and those who accompany them: Rooms with bath, $3 and $4 per day. Rooms without bath, $1.50 and $2 per day. The above rates are for one person. When two or more occupy the same apartment an additional charge of $1 per day will be made for each extra persons. Single beds will be provided when preferred by guests. These rates apply to convention dates only. Those who wish to attend the Mardi Gras carnival will have to make special arrangements for reservations during that period. The management calls particular attention to the importance of making early reservations, and requests members to communicate with the hotel direct, stating intended date of arrival, character of accommodations desired and the number in the party, etc.

A very low round-trip rate to New Orleans from all sections of the country prevails throughout the winter. There is a special tourists' rate good for thirty days or more and allowing stop-over privileges at all prominent points. Through sleeper service from Western, Northern and Eastern points are of the best. Hence our members will find the convention trip neither a tiresome nor an expensive one.

All the auxiliary associations or allied organizations are urgently invited to arrange for meetings at the same time and place. Every possible facility will be afforded for the deliberative sessions and any social functions or pleasure trips that may be planned.

The executive officers of other associations are requested to communicate with Secretary Randall relative to time of meetings, etc., so that conflicting arrangements may be avoided.

Our members are invited to suggest topics for discussion and subjects for formal papers touching on various important phases of the business in which they are especially interested. Those desiring information as to the requisites of membership in the National Brick Manufacturers' Association, or other particulars as to the convention, are requested to address the secretary at Indianapolis.

The American Face Brick Association.

(Official Report)

The American Face Brick Association held its second annual meeting at the French Lick Springs Hotel, French Lick, Ind., December 10-12. After the reading of the minutes of the last annual meeting, and a discussion as to the policy of the Association as to limiting the membership, President L. G. Kilbourne read his annual address. This paper reviewed the absolute necessity for an Association of this character for the face brick industry, and urged the passage of legislation regarding the salient points which would be brought out in the papers which had been prepared by those on the program.

INSERT KILBOURNE'S PAPER.

The reports of the secretary-treasury were next read. The general report embraced an outline of the work which had been done during the period since the secretary-treasurer's office was opened on April 1, 1913. The financial report was read and showed the Association to be in a very flourishing condition.

The By-Laws of the American Face Brick Association, adopted at its organization meeting, in March, 1912, have been inadequate in properly describing the purposes of the Association, and have not been clear as to the duties assigned to the officers, directors and members. The absolute need for clearness on this subject prompted the Board of Directors, at a meeting in September, to appoint a committee to draft a new constitution and by-laws, to be offered to the membership at its next annual meeting for adoption. The new constitution, which had been carefully prepared, was submitted, and, with a few minor changes, was unanimously adopted. In addition to the constitution, which will be known as the "Organization, Constitution and By-Laws of The American Face Brick Association," certain rules were adopted for the government of the members, which will automatically become a part of the by-laws. These rules are in the nature of business ethics and are expected to relieve many complaints of unsatisfactory relations brought up in the past.

COMING CONVENTIONS.

NATIONAL BRICK MANUFACTURERS' ASSOCIATION, Theodore A. Randall, Secretary, Indianapolis, Ind.—Meets at New Orleans, La., March 2-5, 1914.

ANCIENT ORDER OF CHALDEANS, Iverson C. Wells, Supreme Keeper of the Tablet, 445 Plymouth Court, Chicago.—Meets at New Orleans, La., March 2-5, 1914.

AMERICAN CERAMIC SOCIETY, Edward Orton, Jr., Secretary, Columbus, Ohio.—Meets at Wheeling, W. Va., Feb. 24-27.

WESTERN PAVING BRICK MANUFACTURERS' ASSOCIATION, George W. Thurston, Secretary, 416 Dwight Bldg., Kansas City, Mo.—Meets at Kansas City, Jan. 17, 1914.

EASTERN PAVING BRICK MANUFACTURERS' ASSOCIATION, C. A. Young, Secretary, 807 Abbott Bldg., Pittsburgh, Pa.—Meeting place and date to be announced.

CANADIAN NATIONAL CLAY PRODUCTS ASSOCIATION, John R. Walsh, Secretary, 40 Blake St., Toronto, Canada.—Meets at Toronto, King Edward Hotel, Jan. 27-30, 1914.

REFRACTORIES MANUFACTURERS' ASSOCIATION, John Cavendar, Secretary, 72 W. Adams St., Chicago.—Meets in Pittsburgh, Pa., Feb. 27, 1914.

THE VITRIFIED CLAY INDUSTRY, John L. Rice, Secretary, 1009 Wyandotte Bldg., Columbus, O.—Meeting place and date to be announced.

PACIFIC CLAY PRODUCTS PUBLICITY BUREAU, Frederick C. Davis, Manager, 312 Crocker Bldg., San Francisco, Cal.—Meeting place and date to be announced.

BUILDING BRICK ASSOCIATION OF AMERICA, H. Jerome Lee, Secretary, 481 Marbridge Bldg., New York.—Meets at New Orleans, La., March 2-5, 1914.

OHIO BRICK AND TILE ASSOCIATION, George B. Drennan, Secretary, Plymouth, Ohio.—Meeting place and date to be announced.

ILLINOIS CLAY MANUFACTURERS' ASSOCIATION, A. E. Huckins, Secretary, Champaign, Ill.—Meets at Champaign, Ill., Beardsley Hotel, Jan. 22-24, 1914.

WASHINGTON CLAY WORKERS' ASSOCIATION, James Gibson, Secretary, Seattle, Wash.—Meeting place and date to be announced.

WESTERN ONTARIO CLAYWORKERS' ASSOCIATION, Alfred Wehlan, Secretary, Cairo, Ont.—Meeting place and time to be announced.

TEXAS CLAY MANUFACTURERS' ASSOCIATION, James Harry, Secretary, Dallas, Texas.—Meeting place and date to be announced.

SOCIETY OF VITRIFIED CLAY MANUFACTURERS, W. H. Bassler, Secretary, 814 Chamber of Commerce, Chicago.—Meeting place and date to be announced.

INTERSTATE MANTEL & TILE DEALERS' ASSOCIATION, Robert Beck, Secretary, 1907 Michigan Ave., Chicago.—Meeting place and date to be announced.

OHIO FACE BRICK ASSOCIATION, W. D. Richardson, Secretary, Columbus, O.—Meeting place and date to be announced.

INTERNATIONAL CLAY PRODUCTS BUREAU, Geo. H. Tifft, Secretary, New York Life Bldg., Kansas City, Mo.—Meeting place and date to be announced.

WISCONSIN CLAY MANUFACTURERS' ASSOCIATION, Samuel Weidman, Secretary, Madison, Wis.—Meets at Republican House, Milwaukee, Wis., Jan. 29-30, 1914.

BRICK BUILDERS' BUREAU, N. Ellery, Secretary, Merchants' Exchange Bldg., San Francisco, Cal.—Meeting place and date to be announced.

NATIONAL TERRA COTTA SOCIETY, Wm. D. Gates, Peoples' Gas Bldg., Chicago, Secretary.—Meeting place and date to be announced.

OKLAHOMA BRICK MANUFACTURERS' ASSOCIATION, E. B. Wentworth, Secretary, Oklahoma City, Okla.—Meeting place and date to be announced.

NORTHWESTERN CLAY ASSOCIATION, Axel. Andersen, Secretary, 3145 Calhoun Blvd., Minneapolis, Minn.—Meeting place and date to be announced.

ARKANSAS BRICK MANUFACTURERS' ASSOCIATION, W. W. Dickinson, Jr., Secretary, Little Rock, Ark.—Meeting place and date to be announced.

ALBERTA CLAY PRODUCTS MANUFACTURERS' ASSOCIATION, Mark Drum, Secretary, Calgary, Alta.—Meeting place and time to be announced.

NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION, Will P. Blair, Secretary, Engineers' Bldg., Cleveland.—Met at Cleveland, Ohio, Sept. 15-17, 1913.

AMERICAN FACE BRICK ASSOCIATION, R. D. T. Hollowell, Secretary, Park Bldg., Pittsburgh, Pa.—Met at French Lick, Ind., Dec. 10-12, 1913.

FACE BRICK DEALERS' ASSOCIATION OF AMERICA, R. L. Queisser, Secretary, Schofield Bldg., Cleveland, Ohio.—Met at French Lick, Ind., Dec. 10-12, 1913.

IOWA CLAY PRODUCT MANUFACTURERS, C. B. Platt, Secretary, Van Meter, Ia.—Met at Des Moines, Ia., Dec. 10-12, 1913.

UNITED STATES POTTERS' ASSOCIATION, Charles F. Goodwin, East Liverpool, Ohio, Secretary.—Met at Pittsburgh, Pa., Dec. 2-3, 1913.

SAND LIME BRICK ASSOCIATION, W. E. Plummer, Secretary, Buffalo, N. Y.—Met at Harrisburg, Pa., Dec. 9-10, 1913.

J. W. Moulding, of the Thomas Moulding Brick Company, read a paper on the subject "The Advantages of Adopting Uniform Methods to Improve the Service of the Members of this Association." In this paper it was suggested the Association should have some literature for presenting the merits of brick as a building material to those prospects, who are expecting to build, but are undecided what materials to use. In a long discussion of this feature, it was unanimously voted that the merits and demerits be worked out by the Publicity Committee, of which J. Parker B. Fiske is chairman. The other features of Mr. Moulding's paper were either passed upon by the membership or referred to the proper committee. The membership approved the idea that the office of the secretary-treasurer should compile and distribute among members a classified monthly stock report of the amount and kind of brick unsold by the members. This to include brick in stock or in kilns on a certain date, unsold. This information is to be totaled and no individual figures will be given out. It is expected such reports will be helpful to the members in determining what kinds of brick and in what amounts it would be profitable for them to manufacture.

F. W. Butterworth then read a paper upon the subject "Ethical Rules for Selling Face Brick." This paper contained so many essential principles which should govern the brick manufacturer in his methods of doing business, it was referred to the rules committee, of which Mr. Butterworth is chairman, for the embodiment of the most important principles in a code of rules. The rules committee reported at a later session, and the rules were adopted, subject to revision upon advice. This paper was printed in full in the Dec. 16 issue of "Brick and Clay Record."

R. D. T. Hollowell read a paper on the subject "Freight Traffic Work by The American Face Brick Association." In this paper was outlined just what traffic work should be attempted by this Association. A suggestion was made that the traffic department be organized with a clearly formulated set of rules, and that authority be given to employ the necessary clerical force to properly take care of the needs. In view of the amount of work, other than traffic work, which must be accomplished during the next several months, this suggestion was tabled for final action until the next meeting of the board of directors, at which time it was hoped a clearer idea as to the needs of the Association could be formulated.

An important resolution, which was adopted, is as follows:

"Be it resolved the members of this Association shall require their agents or dealers, when submitting orders, to include the following information: Consignee, Address, Destination, Routing, Rate, Name of Architect, Name of Owner, Name of General Contractor, Name of Brick Contractor, Street and Number of Job, Kind of Building—or other structure, if building has a name state it—approximate time of first delivery and probable rate of shipments.

"Be it further resolved, that in accepting an order, the acknowledgement be written by some one connected with the manufacturer, who is in position to know whether or not same should be taken in order to fill acceptably, in the time named in the order. That acknowledgement of orders should contain a statement as to whether or not the manufacturer intends to comply with the request."

One of the serious drawbacks in the sale of face brick has been the inability of the manufacturer to secure complete and intelligent information when accepting orders. Without this information, the manufacturer has been largely blamed on account of not being able to complete his shipments at the exact time the material has been needed on the job. The second paragraph of the resolution binds the manufacturer, in accepting an order, to acknowledge same in such a way as to let his selling connection know that he understands the order and will carry out all of its requirements. The enforcement of the sense of this resolution will tend greatly toward harmony among the brick trade in general, and it is expected that this piece of legislation will relieve, in a large measure, many of the distressing conditions which have been prevalent in the past. In this connection, a resolution was adopted condemning, in no uncertain terms, the practice of accepting orders for larger quantities of face brick than can be delivered with reasonable assurance, and insisting upon the members of this Association refraining from such methods.

During the past year the face brick business has been injuriously affected in various localities by misleading advertisements and misrepresentation of various kinds. The Association will insist upon any member or their selling connections abstaining from such practices.

The following resolution was offered and adopted at a joint meeting of The American Face Brick Association and The Face Brick Dealers' Association:

"Whereas, the U. S. Government at the present time, through its various departments of the Interior, distribute literature, circulars, pamphlets, samples, seeds, issue instructions relative to the conservation of the farm and field products and in various other ways take up the economic problems that confront the peoples of this country and

"Whereas, the use of brick in the building of homes is of unquestioned economic value and

"Whereas, the question of the value of the use of brick is not thoroughly understood, now, therefore, be it

Resolved, that the American Face Brick Association and the Face Brick Dealers' Association request their members to take up the question with the proper authorities and also their members of Congress and further that a joint committee of three from each association be appointed to arrange ways and means for the furtherance and fulfillment of this resolution."

This resolution embodies a large question, and has been referred to the proper committee by both associations.

A motion was carried, making it a part of the duties of the secretary-treasurer of the Association to secure the financial rating of a dealer when any member of the Association asks for it. This source of information should be particularly valuable to every member, as it is believed any reputable dealer will be more than glad to furnish reliaole statistics as to his financial and business ability.

One of the most pleasant features of the conference at French Lick was a joint meeting of the members of The American Face Brick Association and the Face Brick Dealers' Association on the afternoon of Dec. 11. Papers were read by W. S. Smit, whose subject was, "What the Manufacturer and Dealer Owe Each Other," and by Mr. H. W. Holmes, on the subject, "Price Cutting vs. Salesmanship." In addition to these excellent papers, read by members of the American Face Brick Association, T. A. Randall, editor of "The Clay Worker," read a paper on the general subject of organization; Arthur D. Rogers, of the "Brick Builder," made an inspiring address, urging the manufacturer and dealer to keep in mind the artistic side of their business rather than to permit commercial instincts to overshadow same. Mr. Rogers' address was unique in the history of brick manufacturers' conventions, and it served to heighten the esteem in which he is now held by the better class of manufacturers of burned clay products. Iverson C. Wells, managing editor of "Brick and Clay Record," made an address which was timely in its advocation of a system of open prices. His friendly advice will undoubtedly be heeded by many groups of manufacturers and dealers located throughout the country. A short address was made by Mr. Knight, of the Buffalo Builders' Supply Company, urging co-operation between manufacturer and dealer. Upon the invitation of the Face Brick Dealers' Association, Mr. H. L. Fogelman, of the Sheldon School, Chicago, preached a sermon upon the necessity for business men of all classes to make the most of their opportunities by employing efficient methods and by individually leading clean lives. Mr. Fogelman's address was an inspiration to all who heard him, and by his wonderful display of mental qualifications produced a profound impression. Will P. Blair, secretary of the National Paving Brick Manufacturing Association, who is one of the pioneers in brick organization work, and whose remarkable success is reflected by the prosperity of his association, did not reach French Lick in time to deliver an address at the joint meeting on the afternoon of Dec. 11. However, at a special meeting of manufacturers and dealers, held on the morning of Dec. 12, he delivered a forceful address upon the general subject of "Organization Essentials." His timely remarks were deeply appreciated by all.

In its concluding session, The American Face Brick Association passed a vote of thanks to the management of the French Lick Springs Hotel, whose untiring watchfulness and courtesy proved such a large feature in the success of this meeting.

Iowa Clay Products Manufacturers Association.

(Official Report.)

The Iowa clay products manufacturers are never slow. They have already held their "1914" convention and the convention itself was one which we may truthfully say was up-to-date. About one hundred delegates were on hand, and the program was interesting and ably handled.

This meeting was essentially progressive—not because of the program itself, but rather because of the spirit of enlightened determination on the part of the Iowa clay people to handle their questions in a progressive, business-like manner.

The convention opened Wednesday, Dec. 10, with the annual address of President H. R. Straight of Adel, Ia., who covered very briefly the work done by the association during the year and pointed out the need of much co-operative effort in 1914, on the part of the membership, immediately following this address Prof. A. Marston, dean of the engineering department of the Iowa State College at Ames, gave an interesting account of the work being done by a committee from the society and testing materials, of which he is the chairman, on the testing of drain tile. This committee, he showed, was working very exhaustive tests and a report was promised shortly which would be the basis for a standard on all drain tile.

Iverson C. Wells, managing editor of "Brick and Clay Record" was the next speaker on the program and had as his subject, "The Open-Price Policy." This address appeared to deeply interest the convention and inspired the convention to appoint a special committee to make an investigation of the subject and to confer with Mr. Wells with the idea of adoptiing the principles.

H. L. Tramp, of Creston, Ia., read a paper on "Keeping Down Costs and Watching Quality" and J. L. Platt, Jr., of Van Meter, Ia., talked very interestingly on "The Manufacturers' Territory." Other papers read were as follows:

"Advertising: How It Can Be Used Profitably to Increase the Business of the Individual Manufacturer", Paul B. Lessing, Des Moines, Ia.

"The Wise Man and His Profits," W. U. Turpin, Ft. Dodge, Ia.

"Lowering Cost of Insurance by More Fireproof Factory Construction", O. W. Follett, Home Ins. Co., Des Moines, Ia.

"The New Short Course for Clay Products Manufacturers at Iowa State College", J. Will Parry, Ames, Ia.

Thursday morning a number of other interesting papers were read, these being:

"Publicity Methods in Selling Clay Products", John Berwald, Davenport, Ia.

"A Talk on Clayworking in Iowa", Dr. S. W. Beyer, Iowa State College, Ames, Ia.

"Discussion of Clay Roofing Tile", Chas. Stolp, Des Moines, Ia.

"Pushing the Use of Hollow Tile in Fireproof Construction", F. Titteringon, Rock Island, Ill.

"Local Advertising; How It Builds a Demand", C. R. Madson, Algona, Ia.

"Permanent Farm Buildings," Prof. J. B. Davidson, Iowa State College, Ames, Ia.

"A Discussion of the Farm Market for Clay Product", T. W. LeQuatte, Adv. Mgr. Successful Farming, Des Moines, Ia.

"The Use of Producer Gas in Burning Periodic Kilns", I. M. Justice, Dayton, Ohio.

"Why Direct Selling is Not Desirable, Either as Affects the Manufacturer or the Consumer", C. L. Smith, Mason City, Ia.

Thursday afternoon about 75 members visited the new plant of the Acme Roofing Tile Co. A special car provided by the Des Moines Commercial Club, was run over the Interurban Line to the plant. This trip was of great interest as a majority of the party had never before visited a clay roofing tile plant. On returning to the city, a group picture was taken and the afternoon session was taken up and lasted until 6:30 p. m. This was a very likely session and developed a strong publicity tendency.

The following papers were read at this session:

"Clay Products Manufacturers' Reciprocal Insurance", R. C. McMahan, St. Louis, Mo.

"The Principles and Application of Smokeless Combustion", E. W. Wagenseil, Des Moines, Ia.

"Pointers on Routing and Other Freight Matters," Walter Huenke, Traffic Mgr., Iowa State Mfrs. Association, Des Moines, Ia.

Before adjournment a resolution was adopted which asked that the legislative committee be regulated to prepare a bill to be introduced at the next legislation, providing for an appeal to the engineering department of the Iowa State College at Ames, to settle quality standards of materials used when disputes occur between contractors and engineers in state, county and municipal work.

It was decided not to hold evening sessions as had been planned and which had been the custom in previous conventions. Before adjournment the following officers were elected: B. C. Keeler, Mason City, president; William Goodwin, Des Moines,, vice-president; George Schnurr, Kalo, treasurer, and C. B. Platt, re-elected secretary.

No decision was made as to next year's meeting place.

Illinois Clay Manufacturers' Association.

The Illinois Clay Manufacturers' Association meets at the Beardsley Hotel, Champaign, Ill., Jan. 22-24, and Secretary A. E. Huckens has arranged a very interesting program. It follows:

THURSDAY MORNING.

1. Kiln Temperature Measurements; by R. K. Huesh.
2. Advantages & Disadvantages of Continuous Kilns, by John T. Hummert.
3. Performance of Double Deck Driers, by B. S. Radcliffe.

THURSDAY AFTERNOON.

4. Some Causes of Low Ratler Test in Paving Brick, by A. E. Williams.
5. Open Price Policy, by Iverson C. Wells.
6. Fuel Economy, by W. C. Kirkpatrick.
7. Preliminary Report on Test of Coal Measure Shales, by Prof. R. T. Stull.

FRIDAY MORNING.

8. Manufacture of Hollow Ware, by A. E. Williams.
9. Reciprocal Insurance, by T. A. Randell.
10. Present Industrial Tendencies, by F. W. De Wolfe.
11. Influence of Time on Burning, by Prof. A. V. Bleininger.
12. "Organization." What It Can Do for You, by C. D. Ronike.

FRIDAY AFTERNOON.

13. Progress Ceramics Dept., by Prof. R. T. Stull.
14. The Ethics of Salesmanship, by F. W. Butterworth.
15. Relations Between Manufacturer and Jobber, by Astrid S. Rosing.
16. Electricity in Clay Plants, by J. F. Geileman.
17. Notes on Repressing Lammations and Lubricating Dies, by Prof. R. T. Stull.

SATURDAY MORNING.

Business Session.

Visit to Ceramic Department, University of Illinois, where the brick plant of this department will be in full operation for your inspection, also various kilns and results obtained shown to you.

The banquet will be held Friday evening at the Hotel Beardsley.

Wisconsin Clay Manufacturers' Association.

The Fourteenth Annual Convention of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee, with headquarters at the Republican House, January 29 and 30, 1914. An excellent program is being prepared for this convention. Prof. Edward Orton, Jr., Dean of the College of Engineering of the Ohio State University, will be present and will give two talks on the subjects of burning clays and the method of testing clay wares to determine their usefulness. Professor Orton is a pioneer and a leader in this country in the study of clay products and in the training of young men in the clay working industries. Every clay manufacturer and yard superintendent in Wisconsin should be present and hear him at this convention.

During the past year a series of tests on drain tile has been carried on at the Wisconsin University and a report from the professor in charge will be presented at the meeting. Other topics by members of the association relating to methods of burning, cost of fuel, selling brick, liability insurance, bricklaying courses, etc., will be on the program. A report on the matter of freight rates on drain tile will be presented.

There are about 80 brick and tile plants in Wisconsin and there is no good reason why everyone should not be represented at the convention. The Wisconsin association has the reputation for "doing things" and every one interested in clay products should help in making the association work a success. The final program will be mailed about January 20th.

Canadian National Clay Product Association.

The next convention of the Canadian National Clay Products' Association is to be held at the King Edward Hotel, Jan. 27, 28, 29 and 30, 1914. This was decided at a meeting of the executive committee held on Nov. 14. At this meeting the following entertainment committee was appointed: Charles Miller, chairman; John McCannel, Dan Lochrie, John Berg, John Walsh and G. C. Keith. The following is a preliminary programme:

Tuesday, Jan. 21, 2:30 p. m., registration. Evening theatre party.

Wednesday, Jan. 28, 10 a. m. Opening ceremonies and election of officers. Morning and afternoon sessions. Evening entertainment.

Thursday, Jan. 29, morning and afternoon sessions. 7 p. m. banquet.

Friday, Jan. 30, morning session.

The Sand-Lime Brick Association.

(Official Report.)

The tenth annual meeting of the Sand-Lime Brick Association was held at Harrisburg, Pa., Dec. 9-10, and was opened with the following registration of members:

Hummelstown Brownstone Co., Waltonville, Pa. A. K. Walton, R. J. Walton, A. G. Walton, S. O. Goho, R. R. Fleam.

Birds Hill Sandstone Brick Co., Winnipeg, Man. D. D. Wood, C. F. Clary.

Jackson & Church Co., Saginaw, Mich. John L. Jackson.

Saginaw Brick Co., Saginaw, Mich. John C. Reincke.

Buffalo Sandstone Brick Co., Buffalo, N. Y. W. E. Plummer, Jr., Andrew F. Kempf.

Harbour Brick Co., Toronto, Ont. H. W. Terry.

Winnipeg Sandstone Brick Co., Winnipeg, Man. Hugh Sutherland, W. D. MacFarlane.

Grand Brick Co., Grand Rapids, Mich. H. O. Joseph.

Paragon Plaster Co., Syracuse, N. Y. W. K. Squier, W. H. Boggs.

Cadwell Sand & Gravel Co., Windsor, Ont. C. W. Cadwell, H. C. French.

Pembryn Brick Co., Bridgeton, N. J. E. P. Bacon, H. S. Ayres, Jr.

Crume Brick Co., Dayton, Ohio. W. H. Crume, R. C. Keiser.

Acme Brick & Sand Co., Milwaukee, Wis. Irwin Toepfer.

American Clay Machinery Company, Willoughby, Ohio. L. W. Penfield.

Alsip Brick & Supply Co., Edmonton, Alberta. J. A. Bullman.

Rochester Composite Brick Co., Rochester, N. Y. W. M. Burchfield, Homer E. Knapp.

York Sandstone Brick Co., Toronto, Ont. Thomas J. Smyth.

Roux Composite Brick Co., Plant City, Fla. W. J. Carmichael.

H. S. Spachman, Philadelphia, Pa.

W. E. Emley, U. S. Bureau of Standards, Pittsburgh, Pa.

Fred K. Irvine, "Rock Products," Chicago, Ill.

Upon completion of registration and roll call the meeting was called to order by President S. O. Goho, who called for reports of the secretary and treasurer These were received and referred to the committee on audits for examination and report.

President Goho then appointed the following committees:

Committee on Audit—L. W. Penfield, Irwin Toepfer and D. D. Wood.

Committee on Nominations—W. K. Squier, H. W. Terry and E. P. Bacon.

Committee on Resolutions—W. M. Burchfield, W. D. MacFarlane and W. E. Emley.

President Goho extended an invitation to the Association to visit the plant of the Hummelstown Brownstone Co., at Waltonville, as guests of that company.

Following the examination of brick plant the delegates took the train and were given an opportunity to examine the quarries, the stone cutting and dressing machinery.

The delegation repaired to the Harrisburg Club at 6:30 p. m. for dinner and smoker These "smokers" have been a feature of annual meetings for past five or six years and have been found to be of great value.

On Wednesday, the second day of the meeting, President Goho called upon the following speakers in order, as named:

H. S. Spackman, of Philadelphia, Pa. "Essentials for Success in the Manufacture of Sand-Lime Brick." Discussion, opened by W. H. Crume of Dayton, Ohio.

W. H. Terry, Toronto, Ont. "Sand-Lime Brick in Canada." Discussion opened by W. D. MacFarlane, Winnipeg, Man., Can.

W. J. Carmichael of Willoughby, Ohio. "Sand-Lime Brick in the Sub Tropics."

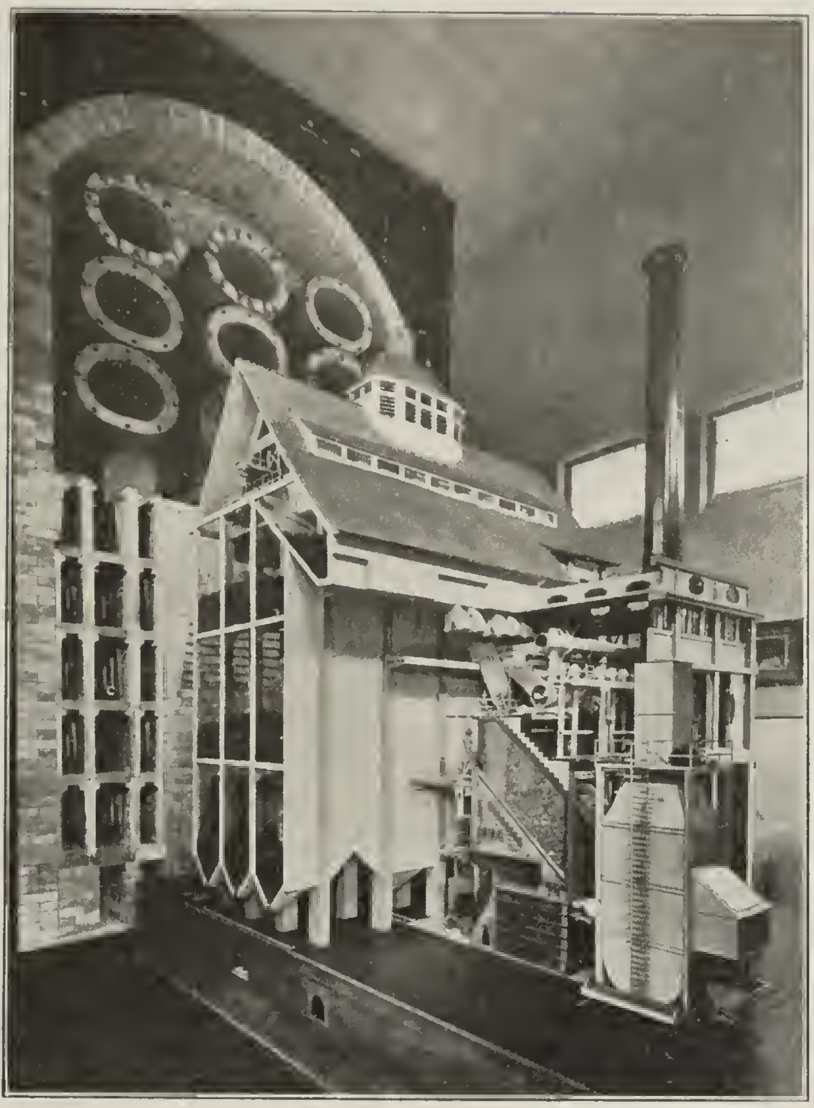
W. E. Emley, of U. S. Bureau of Standards, Pittsburgh, Pa. "Analytical Study of Brick Specifications." Discussion opened by Fred K. Irvine, of "Rock Products," Chicago, Ill.

In the afternoon W. K. Squier took charge of the convention and conducted the "Round Table." This session of the Association has always been looked forward to as excellent opportunity to make close, intimate and exhaustive inquiries among the members and the freedom with which all enter into the spirit of the occasion makes it valuable to all. At 3:30 p. m. President Goho resumed the chair and called for reports of committees: Reports of committee on audit and resolutions were received, approved and ordered printed in the annual report furnished to all members. The committee on nominations reported nominations as follows:

For president: S. O. Goho, Harrisburg, Pa.; for vice-president, H. W. Terry, Toronto, Ont.; for secretary, W. E. Plummer, Jr., Buffalo, N. Y.; for treasurer: John L. Jackson, Saginaw, Mich.

For district representatives: Eastern, W. M. Burchfield, Rochester, N. Y. Central, L. W. Penfield, Willoughby, Ohio. Western, E. C. Chapman, Minneapolis, Minn. Southern, W. J. Carmichael, Plant City, Fla. Canada, G. Silvester, Calgary, Alta.

Upon ballot the gentlemen named were unanimously elected, and on motion of W. H. Crume, the Association resolved to hold its next annual meeting at Dayton, Ohio, Dec. 8th and 9th, 1914.



"This is but a single example of the use of models to show the working possibilities of a commercial plant, at the Leipzig Exposition."

"There is no better expression possible than by a model and all drawings and descriptions cannot bring out the same clearness and truthfulness."

What Germany Gave the Clayworker In the Year 1913

Leipzig Exposition Reveals New Ideas in Brick Machines

By T. W. Garve, M. E.

Mr. Garve, who attended the Leipzig Exposition, representing this journal, gave us a descriptive article in a recent issue of "Brick and Clay Record" on the big show. Here he presents some of the new ideas in brick machinery he observed, many of which have not been exploited in America.

The writer prefaces his article by pointing out the necessity for a clearing house of international ideas among the clayworkers, declaring that the brickmaker and the engineer must reach out and learn what the rest of the world is doing.

WE are living in the age of specialization. This does not mean it is an accomplished fact, ready to be taken over. We do not want to deal in accomplished facts—the purpose of our lives consists in "working" and "striving" for accomplishments, otherwise we might stop right here and drop off. Economists, engineers and business men all along the line are working upon this problem, and whether it ever will be accomplished up to the last dot we do not know, but we do know that it is a watchword of our times just as much as the word "efficiency," and that it has just commenced.

As science and knowledge are broadening and deepening each man is getting more work in his particular field. The more light is falling the more work we see ahead. We cannot have universal genii in our present times any more. The genii of our times are specialists. More faculties are being added to our colleges and each faculty can hardly do more than supply the student with a general knowledge and foundation upon which to build up with the years of life to come.

Even engineers of profession seldom realize the present extent of specialization. To some extent each professional engineer is shut up in his particular field and it can hardly be otherwise. In the mechanical line alone, to quote one instance, there are hundreds of branches, each of which would make a life's study.

The professional engineer may fully realize the extent of his particular calling but he rarely knows about the accomplishments, inventions and strides that are being made in the other fields of engineering. Specialization makes for efficiency—it can claim a great number of ad-

Fig. 2.

Fig. 3.

vantages. However, we cannot overlook the fact that it can easily lead to narrowness—it can make the best man lose sight of the situation.

Efficiency has been gained through specialization, but in most cases, to accomplish this fact, a whole lot of energy may have been wasted merely from the fact that the professional engineer has been shut up in his particular field. Processes, mechanical appliances, devices, machines and manipulations that have been worked out satisfactorily in one certain field of engineering and have been used here for years, could, with slight alterations perhaps, be adopted in another field of engineering and thus would have saved much study, energy and money at this end. With this outside information and knowledge in possession of the engineer concerned quicker and perhaps better results could have been obtaind.

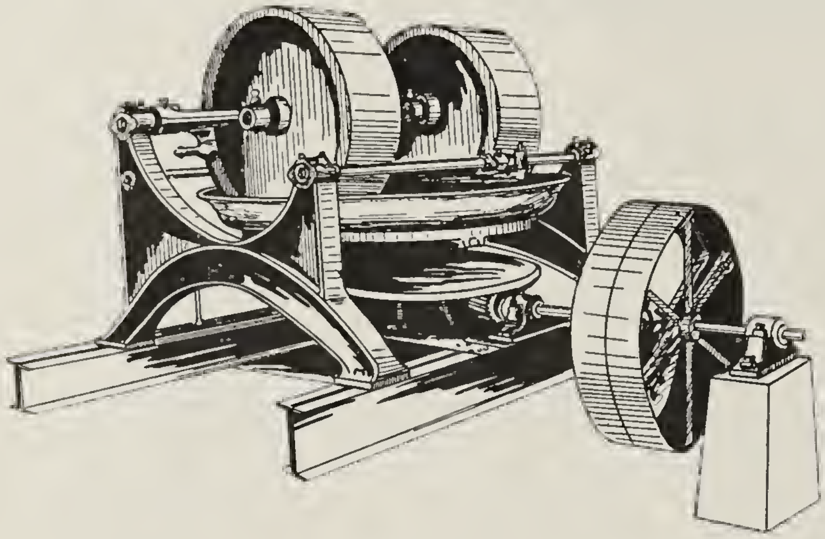


Fig. 4.

We do not wish to be misunderstood. It is not copying the other fellow's ideas. It is the multitude and variety of suggestions we get from the outside upon which we might be able to build our further studies and conclusions.

What the modern engineers need is a clearing house of ideas. The bankers have their clearing houses for their money-values, and the engineer's money-values are his ideas.

The best clearing house the engineer has is the exposition or world's fair. Here is a variety of ideas, expressed in drawings, pictures and descriptions or embodied in buildings, machines, models and all sorts of objects. which we have gathered at the recent exposition grounds of Leipzig, and wish to submit to the readers of "Brick and Clay Record." They are a few out of thousands and while not entirely new ideas yet one may find one idea here and there which may be applied to our American processes to their betterment or to greater economy in operation.

In the illustration that heads this article we have the exhibition of a firm making high grade fire-proofing. In the foreground we have a model of a gas producer and coal storage plant. This is but a single example of the use of models to show the working possibilities of a commercial plant. All branches of industry made use of such models in the Leipzig expositon to illustrate their progress. There is no better expression or representation possible than by a model and all drawings, pictures and descriptions cannot bring out the clearness and truthfulness as expressed in a model. Any one can read a model at a glance, but a drawing requires study even by one accustomed to them, to fully understand them.

In the rear of our first picture we see the open front of a gas furnace with nine retorts. These fire clay retorts are made in one piece 14½ feet long.

Among other fire clay products was a flattening clay stone for making plate glass, 11½ by 4½ feet, having been polished with water glass.

Fig. 2 shows us a loaded hollow block flooring, the shapes of said blocks to be seen on top.

In Fig. 3 we have an exhibition from a sewer pipe factory. A large number of sewer pipe shapes are put up on an elevated brick platform at both sides of a broad stairway. In the center we see a glazed pot of large dimensions. It is a good exhibition and we regret that we failed to obtain a clearer picture.

Fig. 4 illustrates a wet pan. The pan proper is made of heavy cast iron and for the path of the mullers, plates of cast steel are used and plates of armour steel riveted on steel plates for stiffening, provided with conical slots or holes. We see tight and loose pulley and bevel gears.

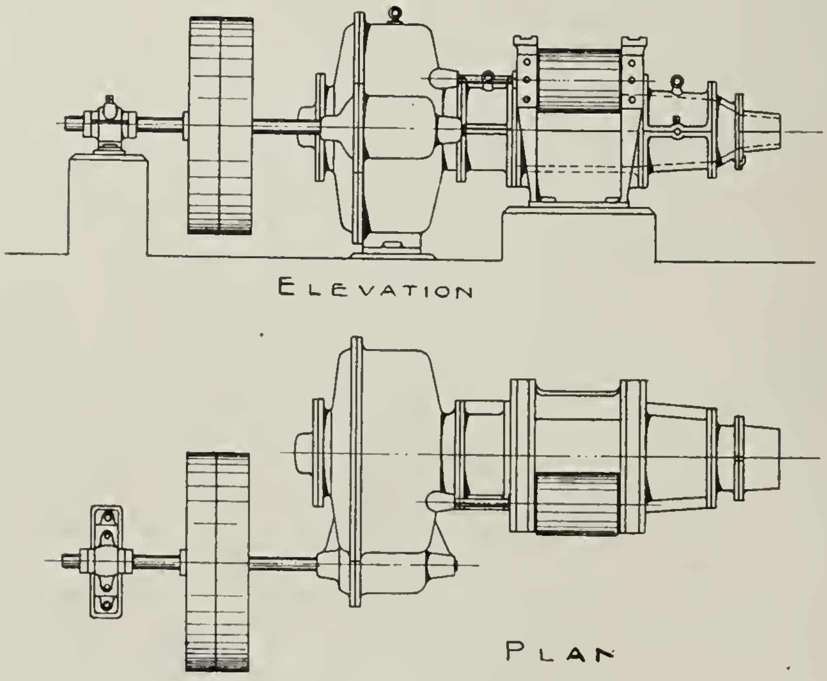


Fig. 5.

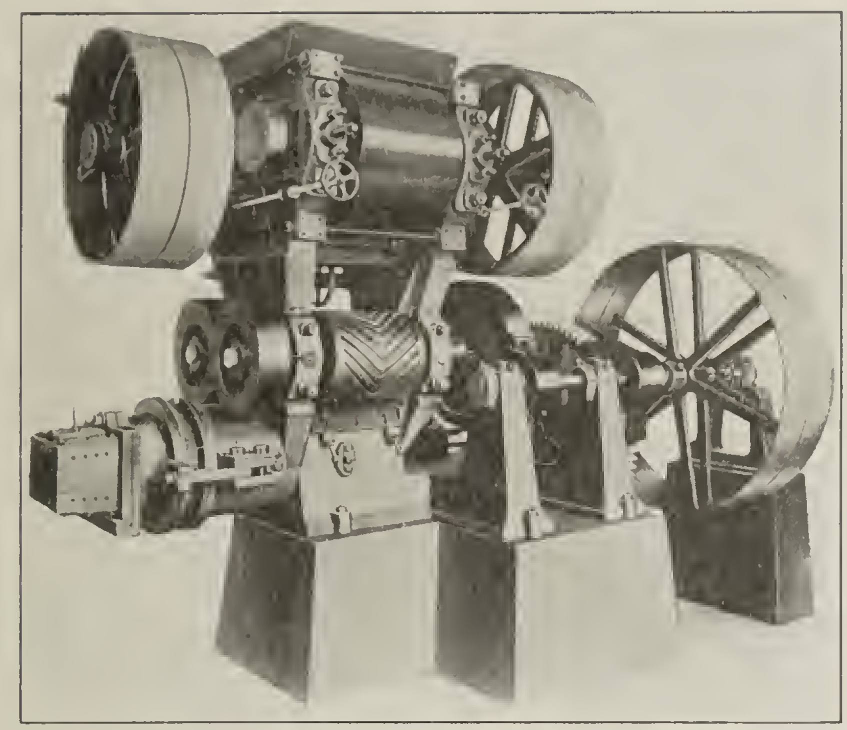


Fig. 6.

This machine has no counterpart in America so far as we know.

In Fig. 5 we have a plan and elevation of a German auger brick machine. At one side above the mouth is the feeding roll and there are flanges provided to carry a set of rolls or a disintegrator above the feeding roll. All gears, those driving the auger shaft and those for the feed roll, are placed within a cast iron housing for safety and to protect them from dirt. This housing carries a flanged projection at the rear which carries the thrust bearing of the auger shaft.

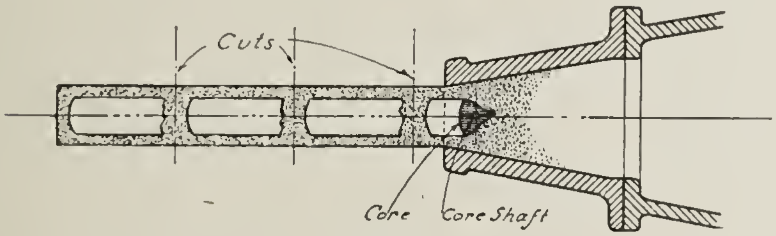


Fig. 8.

In Fig. 6 we have a complete brick machine with rolls above, very typical of German practice, and frequently we find a perforated wet pan above the smooth rolls and an integral part of the machine. Note the low frame on high foundation, the feeding rolls and the protected gears.

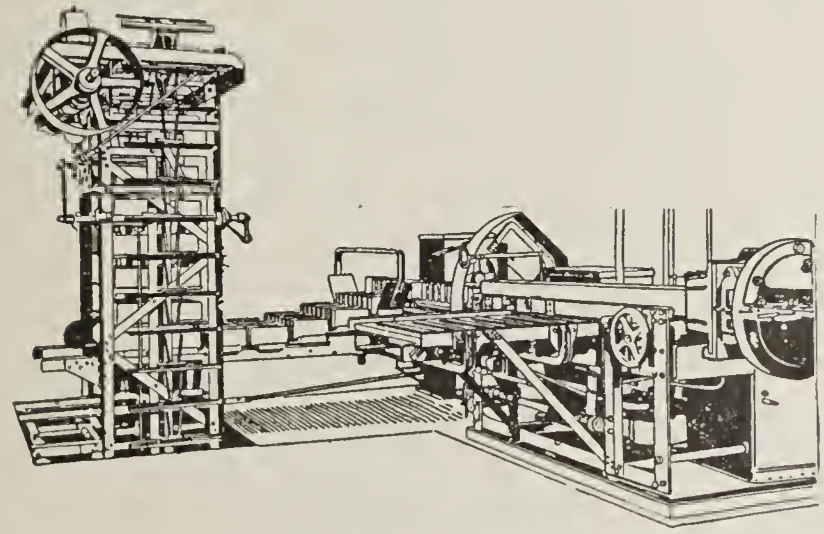


Fig. 9.

There are tight and loose pulleys used throughout, which are largely used in preference to friction clutches.

The rolls we see again in Fig. 7. No gearing is used. The boxes are well protected and thus are appearing like boxes in the real meaning of the word. The hand wheels are for the adjustment of the scrapers.

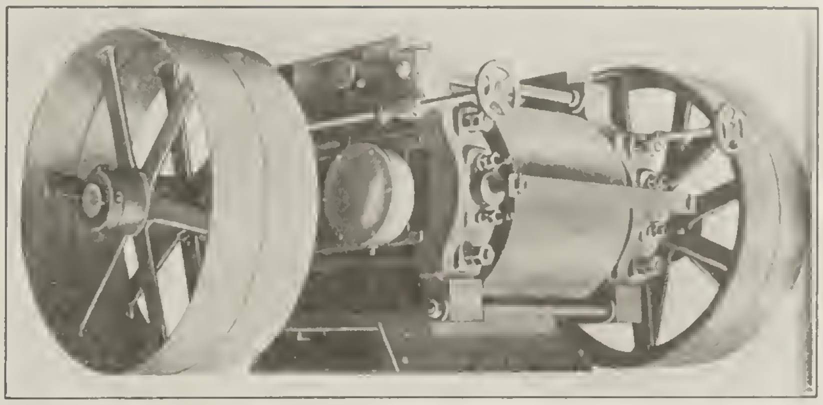


Fig. 7.

Fig. 8 illustrates a mechanism for making hollow brick with closed ends. The core is of almost triangular shape and rotates around a shaft. In the position as shown the core is making the hollow and if turned around 190°, so that the point is directed towards the front of the die, the clay will flow around it and bond together making a partition through which the cutting wire will pass, thus leaving a thin end wall for each brick. It is essential to have the corners of the core at equal distance from the center and that the turning be done quickly.

In Fig. 9 we have some brick machinery of recent design, including the take off. The table we see in front to one side of the bar is to receive the pallets which automatically are taken along under the bar or belt. At the end of the bar an automatic cutter, consisting of a single bow, cuts the brick without waste and the brick then are dropped, properly spaced, on the pallets underneath. After the pallet has received its eight brick the side carrier is set into motion automatically and the brick-loaded pallet is swung off sideways and the next pallet comes into position to receive brick from the cutter. The loaded pallets, by interrupted movements, gradually travel sideways towards an elevator which by projection picks up the nearest pallet and raises it up one step.

The elevator is automatic in all its movements and is controlled by the operation of the machine.

After the elavator tower is filled up with pallets a special high car of the lifting type is pushed under it and all the pallets are carried off to the dryer. The operator assured us that 30,000 brick could be handled easily and 60,000 brick if the cutter is made to cut at the upward as well as downward movement.

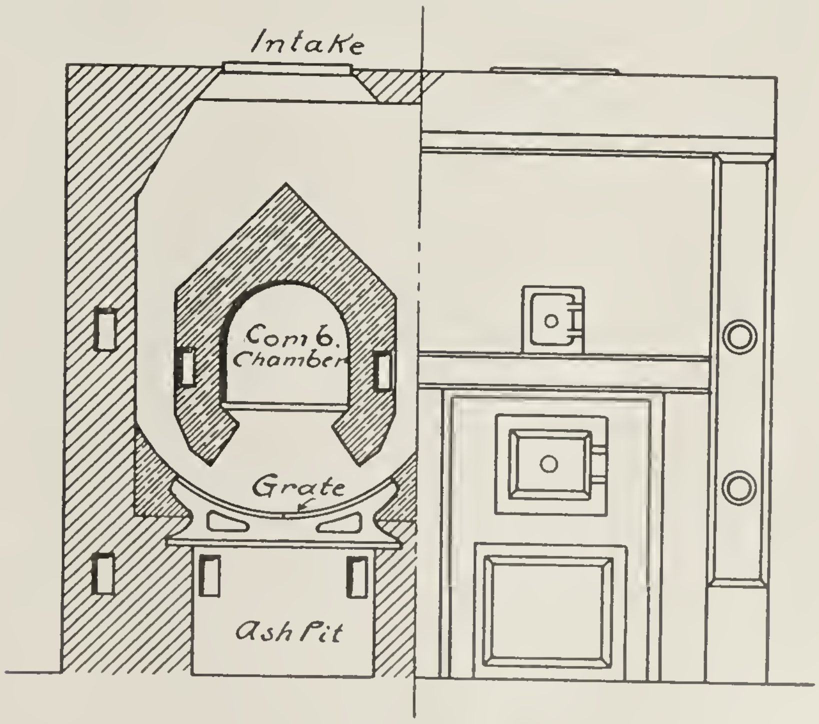


Fig. 10.

Fig. 10 represents a boiler furnace for powdered fuel which has been used quite a number of years and is doing good work. The fuel is charged through openings on top of the furnace. It slides down over an edged bridge, here being heated up, and under it to the grate where in the hollow of the bridge the perfect combustion is taking place. The feed openings are covered with lids.

This furnace has the advantage that no fire doors need to be opened to admit cold air and chill the fire. There is little variation in temperature, since for each charge the bridge above the gas chamber and the fuel in the side pockets will prevent all cold air from entering the gas chamber directly. There is also little loss by radiation and by the inner radiation the fuel will be benefited. Permission for secondary preheated air is made and a proper and good mixing of the primary and secondary air is obtained. The air can be regulated.

This furnace works with little excess of air but, if necessary, the draft and combustion can be forced. There is a saving of about 10 per cent in fuel over the step grate type and an efficiency of nearly 80 per cent is obtained.

Powdered fuel is coming more and more into use; it has been used extensively in the past abroad and will doubtless have a future here.

Vitrified Sewer Pipe Prove Value

THE Bureau of Sewers, Borough of Brooklyn, City of New York, recently conducted tests upon a quantity of vitrified sewer pipe, varying in diameter from 24 inches to 42 inches. The results of the tests caused Edwin J. Fort, chief engineer of sewers, to declare that vitrified sewer pipe is "inferior to none."

The manner of carrying out these tests was similar to the method described by Dr. Gary and commonly known as the German method. The pipe was manufactured by the Blackmer & Post Pipe Company, of St. Louis, Mo., and was tested as called for in the Brooklyn specifications, as follows:

External crushing test.—When supported upon a bed of thoroughly compacted sand of such dimensions and in such manner that an even bearing is provided throughout the whole length, but without appreciable displacement of sand at the sides the various sizes of pipe shall withstand the following pressures applied at the crown uniformly along a line 1 inch in width and extending the whole length of the pipe exclusive of the bell.

Diameter.	Pressure per Lin. Ft.	Diameter.	Pressure per Lin. Ft.
6 inches	1,000 lbs.	20 inches	1,600 lbs.
8 inches	1,000 lbs.	22 inches	1,800 lbs.
9 inches	1,050 lbs.	24 inches	2,000 lbs.
10 inches	1,100 lbs.	30 inches	2,700 lbs.
12 inches	1,150 lbs.	36 inches	3,300 lbs.
15 inches	1,300 lbs.	42 inches	3,800 lbs.
18 inches	1,450 lbs.		

"These tests," state Mr. Fort, "were all made with a knife edge placed parallel to the axis of the pipe. As to what the crushing strength of this pipe would have been had the pressure been applied equally to the upper half of the pipe, the lower half being imbedded in sand, I will state that I have worked out the information in accordance with a complete analysis of this and similar problems made by me while a student at Cornell University and later by Prof. Talbot of the University of Illinois.

The following formulae were used in making the calculations, the knife edge load assumed as a concentrated load along the crown of the pipe:

e and f=Extremities of vertical axis.

g and h=Extremities of horizontal axis.

p=concentrated load per foot of length.

d=distributed load per square foot of diametral projection.

a=mean diameter of pipe from neutral axis of walls.

M=bending moment.

Formulae.

Bending moment for concentrated load.

$Me=Mf=.16\ pd.$

(By Me, Mf, Mg, etc., is meant bending moment at e, f, g, etc.)

$Mg=Mh=.09\ pd.$

Bending moment for distributed load:

$Me=Mf=Mg=Mh$

$=1/16\ pa^2.$

The following table gives the results obtained:

A	B	C	D	E	F	G
24-inch Std.	1 9/16	2420	825	28.50	22.5	6424
24-inch D.S.	2 1/16	3150	1090	36.5	29.0	8642
27-inch Std.	2 1/4	3875	1531	40	32	10670
27-inch D.S.	2 9/16	5183	2090	53	42	14340
30-inch Std.	2 7/16	4767	2081	45	35.5	13110
30-inch D.S.	2 3/4	4167	1890	38.5	31.0	11550
33-inch Std.	2 9/16	4433	2102	38.5	30.5	12170
33-inch D.S.	3	5658	2692	47.5	38	15680
36-inch Std.	2 9/16	4483	2320	35.5	28.5	12240
36-inch D.S.	2 3/4	5516	2868	43.5	35	15070
42-inch D.S.	3 1/2	4967	3071	33	26.5	13683

A=Nominal diameter in inches.

B=Average wall thickness in inches.

C=Failed at inch pounds per linear foot under knife edge test.

D=Bending moment at e.

E=Height of column of earth weighing 100 lbs. per cu. ft. carried on pipe to give same bending moment for distributed load as given in column C.

F=Same as column E, earth weighing 125 lbs. per cu. ft.

G=Total load distributed per linear foot of pipe to produce moment in column D.

Columns E and F, in the table showing the depth of the column of earth, weighing respectively 100 and 125 pounds per cubic foot, which the specimens tested would have supported, do not provide for any lateral support, which the pipe always receives from the earth which is rammed about it when it is laid, but which is very uncertain in amount. No allowance has been made also for the arching effect of earth in the trench, which nearly always takes place, but which is also uncertain in amount. The most extreme case which could happen is considered, that is, the earth in the trench is of such a character that its whole weight is transmitted to the pipe and no lateral support is received.

Hundreds of miles of vitrified sewer pipes of all sizes have been laid in Brooklyn, under all kinds of conditions, with the most satisfactory results.

After careful observations made of the vitrified clay sewer pipe in a number of European cities, Mr. Fort is positive that double strength pipe, such as is manufactured by a number of the largest companies in this country, is of a high degree of excellence, and is not inferior to the best pipe of this kind that is produced anywhere.

Read Special Subscription Offer on Pages 28-31 and get "Brick and Clay Record" a lifetime for $15.

Once it was necessary to depend upon the European potter for decorative ceramic ware. The art, so far as the American clay worker was concerned, was unknown, only in the case of a few individuals.

A few years have made a great change, however, and there probably is more American pottery of the higher class than there is European in use in the United States.

The clays used in the manufacture of decorative pottery are much the same as those used in some other clay manufacture, save there is a combination necessary that makes the potter's clay unique.

Kaolin enters largely into the mixture and this has been carefully washed and treated for some of the ware made

American Pottery— It's Development

By Warfield Webb

THE manufacture and development of pottery in the United States has been only one of the many phases of the clay industry that has achieved distinction. There has arisen through the efforts of the manufacturers of artistic or decorative pottery, a far greater reverence for this material, and a like improvement has been noted in the development of the art itself. It stands in a class by itself and still it is closely allied with the clay industry, as one of its higher and more artistic realizations.

The manufacture of pottery, like so many of the clay industries, goes back to the ages when there were primitive methods of living and kindred methods of manufacture. It has stood the tests of all these generations, and with the advent of the newer designs and the improved workmanship, there has come about an increased demand for this decorative material. It is classed as an exclusive art, and the lovers of the same are to be found always among the people with better and more cultivated tastes.

The clays used in the manufacture of this ware are much the same as those used in some other kinds of clay manufacture, save only that there is a combination necessary here that makes the potters' clay unique. What is commonly termed "potter's clay," is the clay used in the manufacture of china, and should more properly be termed china clay.

It is a very white clay, and must be so on account of the uses to which it is put in the manufacture of dishes. Clays for the potter's use, where artistic wares are to be manufactured, are composed of several different kinds of material. It might be stated also that some of these have always and still continue to be imported from Europe. This is necessary from the fact that there more care is given to the preparation of the clays and the elimination of iron and other foreign matter than is given to the preparation of clay in this country.

Clays for use in the manufacture of artistic pottery are made by combining ball clay, china clay, flint and feldspar. When properly ground, each material being done separately in a ball mill, they become an impalpable powder, or in other words, are capable of passing through a mesh of from 150 to 200 screen and are ready for the blunger. However, it is generally necessary to first wash the different materials prior to their grinding, so as to remove as much foreign matter as is possible. The materials should be as pure in their natural state as it is possible to have them, as this makes the pottery far more perfect.

Different systems obtain in different plants regarding the details of preparation in minor respects, and in other ways too, only that there is not very much difference in the final preparation of the several materials.

The ball clay gives the plasticity; the china clay the whiteness; the flint the cohesive power, and the feldspar is to flux the whole. Thus it is noted just why there are so many kinds essential to the whole operation of preparing the clay for the final procedure or firing. It must be fine, because the nature of the work demands the most perfect materials. Its process of manufacture is such as to make this an essential factor that is never to be overlooked by the potter.

In the operation of the blunger is seen the mixing of the materials. There is added to this enough moisture to make them pliable and the mixing is very thorough, otherwise the clay would be unfit for use in pottery work. There are, of course, varying methods used in different plants, and some manufacturers adopt and find their methods more suitable to their special operation. The blending of the different materials is important, and the consistency of the whole must be right to attain the end in view.

When the clay mixture is removed from the blunger, it is placed in the pug mill and given a very thorough pugging. Now it is about ready for the first operation of real artistic work. There are varying designs and many of these must be worked out with the aid of an artist. It is not every one who can design a pottery figure, and there is required in all the work skilled operators to make the undertaking a success. The plain pieces are simply placed on the wheel and the operator designs with comparative ease the particular feature of the piece. Where the design is intricate or special, it must be cast in a plaster of paris mold made specially for the piece.

One of the particular features in connection with this work is the originality of the design, and the artist must be a man of more than ordinary skill and taste to bring these into existence. The color scheme and the design are the real secrets of the potter's success.

When the design has been made, the plastic clay in the plaster of paris mold permits the absorption of the moisture through the latter material, the piece is then biscuited—in other words, it is given its first or initial baking. This is done with all designs and every piece prior to the addition of any color whatever. The degrees of heat in this process are determined upon by the nature of the piece, and there is no rule to be given in this way.

Removing the pottery from the kiln after the initial baking, the color is applied. There are only oxide colors used in this art, and these are few in number. If the piece is to be simply colored with a glaze, there will be but another baking demanded. This is the simple design of the potter's art, and the least costly articles are never given but a single color effect.

Should there be an over glaze desired for the piece, there would be necessary several applications of color and as many burnings. Sometimes it requires as many as six distinct firings to make a piece of pottery complete. In case of the application of gold to the design, this alone demands a separate firing. This has something to do with the varying prices in the different designs, as the labor cost increases with the various glazes.

The advance made in the color effects in the past years has been limited to a great degree by the fact that only oxide colors can be used. The industry itself has been growing and the color effects have been made more elaborate and at the same time more beautiful with the development of the art. One sees a wonderful variety of creations now-a-days, and the designs are far in advance of anything yet attempted.

In some respects the American potter has surpassed those of other nations, and today his work compares favorably with all others in both design and color effects. Germany and Denmark are forging ahead with most favorable progress, but it must be said that there is nothing that has been turned out by any manufacturer in those countries that will excel our efforts here.

Use of Producer Gas in Periodic Kilns

By I. M. Justice

Vice-President Manufacturers Equipment Co,

THE operation of a Gas Producer is strictly a chemical process, and in order that the reader may understand the source from which the various gases in the mixture are derived and their method of formation, the following simple explanation of the chemical reaction is given:

After the fire has been started on the grate of the Gas Producer and the purge pipe to the atmosphere is closed, air is blown through the incandescent fuel bed from below the grate. This air for combustion is composed of two simple elements—one, nitrogen, composing four-fifths of the total volume, and the other, oxygen, being the remaining one-fifth. This air in the presence of the carbon of the coal, is broken up into its two elements, and the nitrogen passes through the fuel and without change appears in the producer gas mixture. This nitrogen will not support combustion—therefore will not burn—and only dilutes the combustible gas. We cannot get rid of it, and consequently all producer gas contains a large proportion of it.

The oxygen of the air, having a strong affinity for the carbon of the coal, unites with it and forms what is known to chemists as carbon dioxide. This gas will not burn, the appearance of it in producer gas is the sign of a poorly operated gas producer. As this carbon dioxide, which is formed in the lower combustion zone of the producer, passes up through the less highly heated coal above, it absorbs from this layer another particle of carbon, and its nature is changed by this absorption. Here it changes from the carbon dioxide of the chemist to carbon monoxide. This gas is combustible, poisonous, and the component most to be desired in producer gas.

It has been found that it is necessary to inject steam along with the air below the grate in order that the heat of the gas producer may be kept low and the formation of the carbon dioxide prevented. This steam serves a second purpose, for a portion of it, coming in contact with the highly incandescent fuel bed, is broken up into its two constituents, oxygen and hydrogen, and the hydrogen without further change passes on and is found in the producer gas mixture. Hydrogen is combustible and adds value to the producer gas. The oxygen of the steam unites with particles of carbon and appears in the mixture again as carbon monoxide. Volatile gases are also driven off from the freshly supplied coal by the heat below, and these in turn occur in the producer gas.

This, then, is briefly the chemistry of the process, and the qualities which are most to be desired are a small volume of carbon dioxide and nitrogen, and large volumes of carbon monoxide, hydrogen and volatile gases of the coal.

The following table is given to show the effect of varying steam on the quality of gas produced.

GASES BY VOLUME	EXCESS OF STEAM		
	Moderate	Great	Maximum
Carbon dioxide	5.30%	8.90%	15.00%
Carbon monoxide	23.50	16.40	11.50
Marsh gas	3.30	2.55	1.90
Hydrogen	13.14	18.60	24.60
Heat value per cu. ft.	151 B. T. U.	135 B. T. U.	128 B. T. U.
Temperature	1472 F.	1292 F.	932 F.

REPORT UNITED STATES FUEL-TESTING PLANT, 1906-7.

Producer-Gas Test.
Illinois No. 19 C (run of mine).

Test 128—Duration of test, 50 hours; average electrical horsepower, 141.0; average B. T. U. per cubic foot of gas, 137.8; total coal fired, 14,000 pounds.

ANALYSES.

Coal.		Gas by Volume.	
Moisture	9.82	Carbon dioxide (CO_2)	11.6
Volatile matter	29.64	Carbon monoxide (CO)	16.8
Fixed carbon	50.34	Hydrogen (H_2)	16.5
Ash	10.20	Methane (CH_4)	1.9
Sulphur	.49	Nitrogen (N_2)	52.9
		Ethylene (C_2H_4)	.3

Gas producers divide themselves into classes by their various qualities and adaptations. When we consider them with respect to the fuel to be used we may name them Anthracite, Bituminous, Lignite and Peat producers and when considered in respect to methods of producing draft we must classify them as Suction, Pressure, Natural, Steam-Blown and Down Blast Producers. Moreover we find another classification with respect to bottoms as Wet Bottom, Fixed Grate and Moving Grate producers.

The gas producer is an old and well understood apparatus as it has now been in successful operation for more than fifty years. The first gas producer was built and placed in operation during the year 1861 by Sir William Siemens and his brother. This producer differs greatly in its form of construction from all producers now on our market but in fundamental principle we have not changed the original plan.

There are at present a large number of successful gas producers on the market among which those are to be found that will gasify any and all solid fuel suitable for that purpose.

Gases which are used in the industries differ greatly in their constituents and in their qualities. The heat value of the gas is one of the most important elements. These heat values correspond with what we call pressure in steam. A cubic foot of steam under a high pressure will do more work than a cubic foot under a low pressure, and so a cubic foot of gas having a large number of heat units will do more work than a cubic foot with a low heat value. This heat value is one of the most elusive things gas users have to contend with, particularly so because it is something that cannot be seen, and which can only be measured by expensive apparatus personally operated.

A British thermal unit, or, as we refer to it, a heat unit, is the amount of heat that is necessary to raise a pound of water 1°F. at its greatest density. This is something that cannot be indicated by a steam gauge, as is boiler pressure, and it is therefore less easily understood, but it is the all-important element in industrial gas. The guarantee given by the gas producer manufacturer is that his producer will generate so many cubic feet of gas per pound of coal having a certain number of heat units per cubic foot, but few gas producers are tested in this manner. This heat value is given to gases by certain components which will support combustion.

Anthracite Coal—This fuel is best of all adapted for gas producer use, and it forms a most convenient method of using up immense quantities of the smaller and cheaper grades of this kind of coal. The grades known as buckwheat and pea anthracite are most used. Little trouble is experienced with these coals, as they have small amounts of volatile matter, and the gas from them is easily handled in pipes. Clinkers are much less liable to form with this fuel than with any other, and consequently less barring and poking is required in the producer.

Bituminous Coal—This fuel is found over a much larger area than anthracite coal, and its grade varies extremely from the free-burning Pocahontas to the low grade Illinois coal which is too poor to burn in the boiler furnace. The United States Government has done a valuable work for the people of the country in proving by actual experiments, giving figures and costs, that this low grade fuel can be burned with economy in the properly arranged gas producer.

Now since this coal abounds over such a vast area of our country and is the fuel most generally used in the industry and moreover practically all of it gasifies freely and successfully, we must secure our greatest value from it. Much of this coal is very low grade but it can be used most advantageously and with great economy.

Lignite, or the brown coal of the carbon group, is found in many of the Western States. It is carbon that has advanced to the next stage beyond that of peat in the chemical process through which coal passes, and, like peat, it contains a large amount of moisture. An analysis of this fuel taken from a mine in North Dakota is as follows:

Moisture	40.53
Volatile	27.05
Fixed carbon	27.37
Ash	5.05
Sulphur	.76

This being the mine sample, is somewhat higher in moisture than that taken from the car. Because of this very high moisture, Lignite is not in its raw state, the fuel for the gas producer, as too much heat must be used up in evaporation of the water contained. In the United States, fuel demands have not been such as to cause users to go to the expense of briquetting this fuel. It is nevertheless something that can be looked forward to, and is interesting especially to the gas producer man anticipating cheap fuels. Gas from Lignite is charged with hydrocarbons and produces an intense heat.

It is not possible within the confines of an article of reasonable length to minutely describe how the Underwood Burning System can be applied as to each individual installation. We therefore aim to briefly but comprehensively describe the application of it in a general way.

The Underwood System embraces a successful and economical application of producer gas under pressure to Updraft and Downdraft Kilns without disturbing in any manner, the general arrangement of the plant. This means that in applying this system, the user preserves his investment which is a most important factor. It will readily be seen, therefore, that this new process is an innovation—a revelation, in that it marks the determination of a fact heretofore declared impossible, because scientific men always believed that producer gas could not be burned economically without a regenerative condition; in other words, that it required superheated air.

The fact therefore, that producer gas has been successfully and economically burned in demonstrating the discovery without this condition shatters the theory advanced as to its impracticability.

The application of the Underwood system embodies a gas producer suitable for gasifying the fuel to be used; main gas fuel for conducting the gas to the arches in Updraft Kilns and to the furnace in Downdraft Kilns; a Blower Fan for forcing the gas to the burners; a pressure blower fan for forcing the air to the point of combustion in each burner; and a system of burners that will effectively handle the gas and air for proper combustion.

The main gas fuel is of vitrified brick construction and leads from the producer to the kiln. The gas is carried under suction through this flue from the producer to the intake side of the blower fan, and is forced under pressure through the remainder of the flue until discharged into the lateral gas flues and the burners.

The lateral gas flues branch off from the main gas flue and are of sewer pipe construction. Through these the gas is carried for distribution to the furnaces. In the case of Updraft Kiln these flues enter under and continue for the entire length of the arches with openings at proper points for admitting gas to the burners. In the case of round or rectangular Downdraft Kilns these flues lead direct to a point immediately under each furnace and from these the gas is admitted to the burners which are contained within the furnaces.

In describing the main gas flue we made mention of the presence of a blower fan. This is located in the immediate path of the main gas flue and draws the gas from the producer and forces it to the point of combustion. It is of the blade type with sufficient capacity to insure adequate pressure for all purposes, and is so installed as to be easy of access at such time when it is necessary to repair or cleanse it.

The air necessary to bring about combustion is introduced into the arches of Updraft Kilns and into the furnaces of Downdraft Kilns by means of a main air tunnel, which is of sewer pipe construction. Leading off from this is a system of small pipes conducting the air to the burners. The air is introduced into the main air flue by means of a pressure blower fan located at the beginning of the main air tunnel and has sufficient capacity to produce a mechanical pressure of one ounce or more which is all that is necessary for the purpose. The air used is not preheated but is of the same temperature as the outside atmosphere.

Combustion takes place in closed furnaces and kilns by means of especially designed burners. The gas is discharged in the arches and furnaces through valves of the mushroom type and the air necessary for combustion is admitted around these valves. The absolute mechanical control of the volume of gas and air makes it possible to admit only such an amount of each as is necessary to produce a perfect burning condition, and it moreover makes possible a high or low fire at the will of the operator. In the case of the air, the control is brought about by means of valves conveniently located on the outside of the kilns, and in the case of gas, a telescoping rod arrangement is used for opening and closing each mushroom valve independently. These valve rods are also operated from the outside of the kilns. All combustion takes place within closed or tight furnaces in Downdraft Kilns and within tight arches in Updraft Kilns. This permits of a perfect control of the burning conditions as the free atmosphere has nothing at all to do with the regulation of the fire.

So it is in our own industry, old forms and old methods shall pass away and be supplanted by new ones that are discovered by the scientific or developed by the practical mind.

Five-ton Truck Used with Profit by an Ohio Plant.

Motor Truck Saves 67.5 Per Cent. in Short Hauls

By Irwin C. Walker

DOES the motor truck pay in the brick yard? Some brickmakers contend that it does not and especially in short hauls, but the writer is disposed to believe this class make the statement without giving the subject more than a cursory investigation, if that much.

Motor trucks of 5-ton capacity do pay the brickmaker and they pay on short hauls as well as on long hauls, for I have the records of nearly a score of cases which I have collected recently and these records are convincing proofs.

I find that wherever an owner declares his truck was unprofitable that he was using it blindly and that as soon as he was pointed out the proper use of his machine, he became a prompt convert.

Even a wheelbarrow cannot be used profitably unless one understands how to use it. The same is true of a brick machine, a screw driver or whatever we use.

The chief secret about the use of the motor truck is in keeping it busy. It will prove an expensive luxury, unquestionably, if it is not used to its limit, but so will ten head of mules if you keep them tied up in the barn.

The Akron Brick and Tile Co., of Akron, Ohio, know how to use its truck and do it on short hauls as well as long hauls. This concern has a 5-ton White truck. W. T. Akers, secretary of the company, in telling of this truck, says it runs on an average of 45 miles per day and hauls 2,000 brick sively. The city has created a housing commission with about an average trip about two and a half miles.

"We keep a record of every trip the White truck makes. and it paid for itself at old team rates and the truck earnings average, over all expenses, from $250 to $300 per month."

Another Ohio brick plant—the Keller Brick Company of Akron, has a White truck and it finds it is a profit-maker.

Other brick plants that used White trucks during the past year were: Excelsior Brick and Pottery Co., Baltimore, Md.; Yuignard Brick Works, Columbia, S. C.; Lake Union Brick Co., Tacoma, Wash.; Montowese Brick Co., New Haven, Conn., and the Newberg Brick & Tile Co., Portland, Ore.

Without exception these plants have placed the stamp of approval on their trucks.

The proper way to get efficiency out of a truck in a brick plant is the use of loading and unloading devices, although I doubt whether any of the companies mentioned above, have given this idea any serious attention.

These devices, however, in the brick business have made it possible to keep the truck in motion a large portion of the day with corresponding economy. The brick are piled on cross-planks, these planks resting on stands which are long planks placed on edge, parallel, and all joined to a base. The skip, a fork-like device with long fingers, is lowered and then entered into the spaces between the planks. When the skip is raised, it picks up the cross-planks and the brick piled upon them, 840 brick to a unit, weighing about 3,350 lbs. The reverse operations take place in depositing the brick in the truck body, the fingers passing down between upright planks of body, leaving behind the cross-planks and their load of brick. The skip can then be withdrawn. Three of the units make up a 5-ton load, or about 2,520 brick. To unload the brick, the body is dumped in the usual way. For pressed brick, however, this method of dumping is too injurious and other means have been devised.

With the skip described above, loading can be accomplished in less than 1 minute per unit, or about 5 minutes per load of three units. Unloading is complete in 5 minutes by means of the dump body. Compare this with the time for hand unloading and loading: One man, hand tossing, can pass 1,500 brick in 20 minutes or 2,500 brick in 34 minutes. The power loading device required two men at the kiln, who received less than 15c per 1,000 brick. Unloading was performed by 1 man. The cost of loading was $0.15×2.5=38c for labor, and about 5c charged against use of machine.

Following is the record of a demonstration for a brick company by a 5-ton gasoline truck, first over a short haul with radius of 3.8 miles, later over a long haul with radius of 8.3 miles.

SHORT HAUL—AVERAGE RADIUS, 3.8 MILES.

Date	Time in Service		Mileage	Brick Delivered
July 10	7 hr.	58 min.	18	7,500
11	10	47	51	22,500
12	9	15	42	17,500
13	4	57	15	7,500
15	10	35	44.5	17,500
16	5	2	27	10,000
17	7	1	35	15,000
18	7	25	33.4	12,500
20	2	36	16.7	5,000
22	6	27	31.4	10,000
23	8	42	46.5	12,500
24	8	10	41.8	12,500
25	8	26	41.2	12,500
26	9	20	48	12,500
27	7	25	38.8	12,500
29	11	55	85.9	12,500
Total	126 hr.	1 min.	616.2	200,000
Average	7	52	38.5	12,500

LONG HAUL—AVERAGE RADIUS, 8.3 MILES.

Date	Time in Service		Mileage	Brick Delivered
Aug. 2	10 hr.	55 min.	81.8	10,000
3	9	20	64.8	10,000
5	10	40	92.2	12,500
6	11	4	81.5	12,500
7	10	6	73.4	10,000
8	9	55	49.5	10,000
9	2	25	17.5	2,500
10	7	45	49.5	7,500
12	9	20	67.5	10,000
13	10	0	53.8	10,000
Total	91 hr.	3 min.	631.5	95,000
Average	9	9	63.1	9,500

COST OF OPERATION, 5-TON DUMP BODY.

Investment in truck		$5,000
Interest @ 5 per cent per year	$ 250.00	
General insuranco	175.00	
Garage @ $12 per month	144.00	
(This does not pay for washing and polishing, as driver does this himself.)		
Tires, 8000 miles @ $488.95	$0.0610	
Fixed charges per year	$1569.00	
Fixed charges per day (300 working days)	5.23	
Operating charges, per mile:		
Tires, 8000 miles @ $488.05	$0.06110	
Gasoline, 4½ miles per gal. @ 10c (? very low)	.02200	
Lubrication:		
Motor, 250 miles per gal. @ 50c	.00240	
Transmission, 1000 miles per gal. @ 65c	.00065	
Rear axle, 1000 miles per gal. @ 65c	.00065	
Allowance for daily repairs and overhaul (maintained and overhauled at 15,000 miles)	.03500	
Depreciation @ 150,000 miles	.02870	
Total operating expense per mile	$0.15050	

From the above data, the cost of hauling 200,000 brick can be computed as follows:

Short haul, average radius 3.8 *miles.*—$5.23×16+$0.1505×616.2=$83.70+$92.80=$175.50. Cost per 1,000 brick=176.50÷200=$0.88.

Long haul, average radius 8.3 *miles.*—$5.23×10+$0.1505×631.5=$52.30+$95.00=$147.30. Cost per 1,000 brick×$147.30÷95=$1.55.

Comparing these costs with the charges for horse-haulage, which are as follows per 1,000:

Under 2-mile haul	$1.20
Under 3-mile haul	1.35
Under 4-mile haul	1.50
About 8-mile haul	2.10

we find the saving in the cost by motor on the short haul is $0.62, or 41.4 per cent; while on the long haul it would be $0.55, or 26.2 per cent. Actually, the latter haul would never be attempted with horses.

In the above case, the truck did not work regularly 10 hours per day, although under normal conditions the work might be so arranged that it could do so. Assuming that the truck were kept at work 10 hours per day, six days per week, making seven trips of 3.8 miles radius per day, and hauling 17,500 brick per day, in the same manner as above, the cost per 1,000 brick can be computed as $0.758, as against $0.88. Similarly, for the long haul of 8.3 miles radius, making five trips per day, and hauling 12,500 brick per day, the cost per 1,000 brick would be $1.42, as against $1.55 above.

Even better daily capacities, with consequent reductions in cost, can be obtained by avoiding unnecessary delays.

The following table is based on the assumption that a truck would work on an average 9¼ hours out of a 10-hour day, and that it would have an average running speed of 10 miles per hour; loading time, 10 minutes; unloading time, 5 minutes; body equipped with power hoist.

Radius of Haul, Miles	Aver. Loads per Day	Miles per Day	Brick Hauled per Day	Cost per Day	Cost per 1000 Brick
1	20	40	50,000	$11.00	$0.22
2	14	56	35,000	13.65	.39
3	10.8	65	27,000	14.85	.55
4	8.8	70	22,000	15.62	.71
5	7.4	74	18,500	16.28	.88
6	6.4	77	16,000	16.64	1.04
7	5.6	78	14,000	16.94	1.21
8	5.0	80	12,500	17.25	1.38
9	4.5	81	11,250	17.32	1.54
10	4.1	82	10,350	17.52	1.71

Comparing team rates with the above we find:

Radius of 2 miles, motor saves	67.5%
Radius of 3 miles, motor saves	59.3
Radius of 4 miles, motor saves	52.7

This shows trucks to the best advantage in short haul work, as opposed to the common idea that trucks are economical only for long hauls. One reason is that the rates for hauling brick by teams are arbitrarily fixed, without any scientific basis. The real explanation, however, lies in the fact that the truck is kept in almost continuous operation by means of time-saving loading devices.

Constructs Stiff Mud Plant in Detroit

Detroit is soon to have a stiff mud plant—something brickmakers in "Auto Town" have dreamed of but never believed it possible to materialize. The Ajax Brick Company, recently organized with a capital stock of $100,000, all subscribed, and composed of representative business men of Detroit, is the name of the company that expects to revolutionize the brick manufacturing industry in Detroit, and the plant is to be thoroughly modern, with all-steel and brick construction.

Fate brick machines, two units with a daily capacity of 150,000 brick, is the equipment purchased, together with two rotary driers which will be used to regulate the moisture in the clay. Electricity will be used to operate the plant.

What makes possible the stiff mud plant in Detroit is the Underwood burning system which is to be installed. Until John T. Underwood announced his new system in the Oct. 21 issue of "Brick and Clay Record," no one believed that a stiff mud brick could be burned out of the Detroit clay. Mr. Underwood had little difficulty in proving his claim that he could make a stiff mud brick out of the Detroit clay and a deal was closed with the Manufacturers' Equipment Co. whereby a plant using the system could be installed. A stock company was formed with a capital of $100,000 and the following officers elected:

C. K. Davis, president; H. C. Herbert, vice president; Charles A. Munz, vice president; George G. Prentiss, attorney and secretary; M. I. Brabb, treasurer.

The Schneider brick plant was purchased and became the newly formed Ajax Brick Company's property Dec. 3. Immediately after that work was begun on the construction of the new plant.

The plant is expected to be in operation early this Spring and because of the peculiar conditions existing at Detroit, in reference to the processes in use by the older plants, the outcome will be watched with interest.

Tennessee Kiln—Showing the Producer House in Foreground.

Producer Gas-Fired Continuous Kiln—Advantageous Points

By R. H. McElroy

Kiln Expert With the C. W, Raymond Co.

FROM what can be discovered, to the German Mendheim is due the credit of first adapting producer gas to the burning of clay ware. His first experiments were conducted in the years 1867 to 1868, in the latter year successfully installing and operating a producer gas-fired chamber kiln for the Royal Porcelain Manufacturing Co. of Berlin, Germany. Since that time, in the neighborhood of 1,100 successful installations have been made on the continent and in Great Britain, burning everything from common brick, face brick, pavers, sewer pipe, roofing tile, high temperature fire brick, to, in special instances, porcelain.

During the last century several attempts were made to apply this system of burning in the United States. Most attempts, I am sorry to state, were unsuccessful, due mainly to the fact that the earlier experimenters failed to note the different conditions under which we manufacture clay ware—larger capacities, different clays, economic and labor conditions.

The real success of the producer gas-fired kiln on this continent came during the latter quarter of the last century, due primarily to the untiring efforts of the late P. L. Youngren, whose inventions on the application of producer gas to continuous kiln practice successfully met the conditions existing in the States. The installations as made covered a wide range of products. It may be that some of the first kilns as installed did not come up to expectations in every sense, but by continued application of the principles as outlined in his patents and his unswerving fidelity to the cause, he left as a monument a score or so of continuous gas-fired kilns that for efficient work, even today, are marvels in all that stands for results in burning operations. Since his death, although the general principles as laid down in his patents still stand, detailed improvements have been made along lines which tend toward still greater facility in operation, greater saving both in labor and fuel, in fact, better efficiency all around.

But we are straying from the subject. Why has this type of kiln been so successful? Because:

First: It shows a great saving in fuel over ordinary kilns.

Second: It uses less labor for operation than any other type of kiln, periodical or continuous.

Third: It is handled with greater facility.

Fourth: It burns more uniformly.

Discussing the saving in fuel over ordinary types, this will average from 50 per cent in the most improved down-draft kilns, to 75 per cent in periodical kilns not so well built, handled and maintained. A compilation of results from four representative plants burning building brick in periodical kilns, the temperature averaging 1850 degrees, average burnt weight 5.6 pounds, shows a fuel consumption of 950 pounds to the thousand. At the same time, an average struck from the operation of five tunnel type producer gas-fired kilns burning practically the same weight brick at a slightly average higher temperature, showed 298 pounds to the thousand, the saving in this particular compilation of figures being 68.7 per cent.

The Producer-Charging Floor.

Other branches of manufacture, such as paving block, face brick, and fire proofing, show a similar saving. For instance, a celebrated fire clay face brick made in Ohio's Hocking Valley, uses about 450 pounds to the thousand in burning 2150°F.; a Tennessee red face and building brick at 2100°F. approximately 400 pounds to the thousand, both kilns being of the chamber variety. In the use of still higher temperatures, such as found in fire brick manufacture, the saving over periodical kilns will still be greater in proportion, due to the splendid insulation of the continuous kiln and the use of highly preheated air for the combustion of gas.

Is it any wonder that a kiln of this type is economical when the chamber ahead of the fire generally shows about three-fourths of temperature of the burning chamber? For instance, a chamber or section has just been finished at 2000°. Therefore, the chamber just ahead of the fire will show about 1500°F. without the application of gas. The next one in line will show about 800°F., etc.

Again, all the air for combustion is pulled through the cooling chambers, no cold air being admitted through the door-ways, as is the case in many coal fired continuous kilns, as well as all periodical kilns.

Discussing the second point—Saving in labor: What constitutes the greatest labor in burning? It is the handling and movement of the fuel. The entire amount of fuel in producer gas burning is fed into the producers. The producers are segregated, therefore, the coal and ash are highly centralized. One bin above the producers suffices for the coal supply. The coal can be dumped from the cars automatically and moved by suitable conveyors to the bins above the producers. From the bins the fuel is very readily fed to the producer hoppers, the most advanced operators doing this by the simple movement of a lever. Can anyone imagine a more economical system of handling fuel? One of the leading exponents of this type of kiln recently stated. "If necessary, our office force can go out, unload a car of coal and feed the producers." The ash, of course, is in small proportion to the fuel burned. It is damp and easily handled, a conveyor or elevator being most adaptable to its removal. Kilns, therefore, up to 70,000 and 80,000 capacity are being daily handled by two men on each shift.

Coming to the third point—Facility of operation: The industrial world is recognizing more every day that greater facility and economy of operation is obtainable through mechanical means than human force. Wherever the human agency can be reduced to the minimum, the more uniform the results obtained. The producer gas-fired continuous kiln is to the highest possible degree mechanical. A certain amount of coal is fed to the producers at certain intervals. The pressure of gas flowing into the kiln is a direct function of the steam pressure on the fuel bed and the speed of the fan. The amount of draft or the speed of the advance of the fire is controlled by mechanical means—a fan, it being, therefore, a matter of a certain number of revolutions per minute. Gas is admitted to the burning chamber by suitable valves operated from an advantageous position.

In the burning of ordinary ware, the kiln atmosphere is oxidizing, yet by a simple manipulation of valves, it can be in a minute changed to a highly reducing one. This allows the manufacture of many flashed products, in fact, some of the most famous face brick in the country are burned in such a manner.

The ability to regulate the kiln atmosphere at will facilitates quite a number of burning operations; none more than the attainment of a rich cream color in calcareous (lime) clays, besides it is practically impossible in most kilns to burn under a purely oxidizing atmosphere at temperatures in excess of 2200°F. The producer gas-fired kiln is in such work, therefore, a very valuable adjunct, temperatures up to as high as 2600° to 2700° being attainable with a pure oxidizing fire. Therefore, for fire brick and silica brick burning, it has no equal. Practically every fire brick made from clay containing any quantity of iron concretions shows an unsightly speckled surface burned in ordinary down draft kilns. Far different are the results obtained when the same brick are burned in a producer gas-fired continuous kiln, the resultant surface unblemished with iron spots, the burned color being the natural one of the clay.

In ordinary kiln-firing, many an otherwise good red or buff colored brick have been ruined by unsightly scum. This may in some instances be an inherent fault of the material, but in most cases can be traced directly to the use of high sulphur coal. Sulphuric acid formed by the union of sulphur dioxide gas and water in the kiln atmosphere, condenses on the brick and attacks the salts in the clay. The unsightly scum, therefore, results. This is practically unheard of in the use of a producer gas-fired kiln. Hot pure air from the cooling chambers is used to watersmoke those chambers just set. No sulphur gas is allowed to enter until the water-smoking chamber temperature is above the condensation point of sulphurous and sulphuric acids. In some cases 200°F. is sufficient. Others, where the coal is very high in sulphur, may require 350 and even 400° before the regular

Kiln Burning Paving Block—Compartment Type.

Tunnel Kiln.

combustion gases can be turned on. Do you know that the producer gas-fired continuous kiln is the only continuous kiln in the country which incorporates this system as a standard part and parcel of its makeup?

We now reach the fourth and last point—Uniformity of burning. A volume could be written on this subject alone, but just a few salient statements are given.

The greater the percentage of A1 ware of whatever kind, the greater the resultant percentage of interest on a given investment. A kiln that would burn all hard brick would be the ideal, but this is as yet an impossibility. If the average down-draft kiln produces 80% A1 paving block, it is an exception and not the rule, in fact, we in no case have ever seen an ordinary down-draft kiln burn more than 80 to 85% A1 paving block as an average the year around, but we do know of an Illinois producer gas-fired kiln that does average near 90%. Further, there can be seen a compartment kiln of the producer gas-fired type near Knoxville, Tenn., burning chamber after chamber of red face and building brick practically all hard, in fact, averaging at least 95% No. 1's the year around. We have at the same plant noticed three chambers opened at one time, and so uniform was the burn that no appreciable difference could be seen in all three as far as color and percentage of hard brick was concerned. Again, so even was the color that with the exception of the extreme top and bottom courses, two shadings would be sufficient.

In Ohio's Hocking Valley there are several large kilns burning face brick with even more remarkable results from the standpoint of evenness of color and high percentage of A1 brick. We have taken a brick from the next to top and one from the next to bottom course, and so even was the color and shrinkage that it was practically impossible to differentiate between them. Similar results have been noted from Southern, Central Western and Canadian kilns of the above type burning building, face and paving brick, drain tile, holloware, etc. Compare such results with the best periodical kiln practice. Only in very exceptional cases is it approached.

Why is such uniformity of results obtainable with the use of producer gas?

First: Through the regularity of procedure of the continuous system.

Second: The operation of the kiln is as near mechanical as possible.

Third: Gas and air are capable of very intimate association.

Fourth: The kiln lends itself most readily to the highest approved construction in flue system, both as to the admission of the firing agent and the passing out of combustion gases.

The speed of rise in temperature of each chamber burned throughout a given time, is to the greatest possible extent constant. This gives great uniformity in heat treatment from day to day. It is impossible to figure the large number of otherwise good brick or other ware that yearly are ruined through rapid cooling. In continuous kiln practice, the time of cooling approaches near to the time of heating up, this being especially valuable in vitrified ware work.

It is now a recognized fact that in most cases slow-cooling in paving brick burning produces a better annealed brick, one that stands greater resistance to abrasion, the kiln in this respect being a most efficient adjunct.

It is necessary in kilns using a solid fuel to have from four to eight times the theoretical amount of air passing through in order to maintain oxidizing conditions. Producer gas used in connection with the regenerative system, that is, the continuous kiln, actually requires in combination from 1.3 to 1.7 of the theoretical amount of air. Not only is a saving brought about, but with the control of the respective amounts of gas and air by mechanical means, a uniform combustion atmosphere permits clean-cut color and evenness of burn.

The line of fire being evenly distributed along one or both sides of the chamber in the compartment type of kiln with a maximum of openings in the flue system under the floor, allows the kiln to burn most uniformly to vitrification, clays of short vitrification range. In one case brought to our attention a 40° to 50° range was shown, it being necessary to replace ordinary kilns with a compartment producer gas-fired type as a matter of self-preservation.

The use of permanent recording pyrometers is to be advised at all times, as well as recording draft gauges. The pyrometers measure the rise in temperature, finish the top of the kiln, while cones finish the bottom.

The installation of more efficient methods of burning is becoming a greater necessity as competition increases and fuel prices ascend. Where a producer gas-fired continuous kiln installation is made, it is almost necessary for competitors in the neighboring locality to do likewise, because the continuous kiln man can lower the price to where it is impossible for the periodical kiln man to go, this being ably illustrated in Toronto, Canada, where eight large kilns are now running or in process of installation.

The coming age is one of economy in all clay-working operations, so the future of the producer gas-fired continuous kiln is well assured.

Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Wants Land for a Plant.

236. *Ohio.—I am interested in the purchase of land for a good paving or building brick plant and wish you would kindly hand this letter to someone who, in your judgment, might have such a plant or land for sale. Would it be possible that a plant or land could be purchased close to this city? If so, I would so prefer, but it makes no difference so long as I find the good shale with which to make good brick.*

A perusal of the classified advertising pages should offer some suggestions to Ohio 236. Why not watch the "Plant For Sale" or "Land for Sale" columns?

Red Burning Sand.

176. *Colorado.—In your issue of Oct. 21, a Colorado subscriber inquired about red-burning sand. Will you kindly furnish us his address? We have a sand that burns a very dark red, but may not be sharp enough for a good molding sand.*

We have complied with our friend's request.

As to Patent on Saggers.

248. *Pennsylvania Can you tell me through the columns of "Brick and Clay Record" whether there is a patent on saggers with pins running all the way across? I have seen such saggers in use in tile factories and have been told that there is a patent on them.*

It would require an examination of the U. S. Patent office records to answer this question. Any patent attorney in Washington, D. C., is in a position to give you the information. It is possible some of our readers may have the facts. We shall be glad to publish any information sent us.

SUPT

More Scum Trouble.

240. *Kansas—I make a stiff-mud brick and find that it shows scum on one side and on the two ends. The side that passes over the rollers of the off-cutting table does not scum to speak of. The die is lubricated by water.*

Assuming that the die lubrication is distributed evenly to all four sides, the clay column is exposed to the same condition at top, bottom and sides, and the passing over the rollers of the cutting table would not affect it sufficiently to prevent any one of the surfaces becoming scummed in the dryer or kiln, if the tendency to scum was in the clay or the green brick. We hazard a guess, however, that the manner of setting the brick, either on the dryer car or in the kiln, is such that the faces and ends of the brick are exposed, and the backs of the brick set close together. The bottom of the clay column, which passes over the rollers of the cut-off, having taken the form of brick, rests upon the off-bearing belt, which may mark it. This would make that side (the lower) the "back." The idea that the change occurs at the cutting table can be eliminated by marking some of the brick "T" for top of column and some "B" for bottom of column, and then seeing that the sides so marked are all treated as "backs" and so set on the dryer cars and in the kilns. Read Professor Binn's article on efflorescence in the Nov. 18 issue of this magazine and do some experimenting with your clay. Watch the water very carefully, also —not only the pugging water, but the water you are using for lubrication.

Magnesite and Silica Brick.

247. *Washington—Will your "Refractories and Furnaces" by F. J. Havard, give us data how to make magnesite and silica brick? In "Modern Brickmaking" by A. B. Searle, can we get the information we need in refractories. If these give the information sought, send them to us, together with a copy of "Seger's Collected Works."*

As to the manufacture of refractories we refer you to the answer given 246 New Mexico, Dec 16 issue. The chapter on fire brick in "Modern Brickmaking" contains a general treatise on the subject of refractories.

Use Silicate of Soda in Slips.

259. *Ohio.—In using silicate of soda to prevent clay slip from settling in the process will it have any marked effect in the firing and will it affect the density of the body and assist in vitrification?*

According to experiments made by members of the American Ceramic Society (Vol. XIII) the use of silicate of soda makes the body more dense and rigid when burnt. It also increases vitrification, but not to any great extent, if you do not put in too much.

Books on Burning.

261. *Indiana.—Have you any books of interest to kiln burners?*

If a book that treats on the subject of burning exclusively is desired our correspondent is doomed to disappointment, for there is none we know of. There are several publications on the various types of kilns, showing construction details, most of which are in German, "Die Brennofen," by Ernst Schmatolla, being one of the best. These books, however, are nothing more than a description of the different kilns. Searls' "Modern Brickmaking," listed by our Book Department, contains chapters devoted to burning of various wares and, we believe, it is about the best published on this subject. There is a woeful lack of literature on the subject and yet it is the one problem that comes up for most frequent discussion.

Promenade Tile.

257. *Georgia.—If there is an authoritative publication on promenade tile please advise me as to its name and that of the publishers. I desire to purchase such a book and post myself on the manufacture.*

In Vol. 14, Transactions of the American Ceramic Society, George W. Shoemaker, Columbus, Ohio, has the best paper

(*Continued on Page* 112)

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

As To Automatic Fuel Feeding of Kilns.

In reading your interesting article in November 18th issue of "Brick and Clay Record," subject: "Firing a Kiln Automatically," it strikes me very forcibly that nine readers out of ten do not get the exact import of J. Seward's article in the Brick and Pottery Trade Journal (English). There is an old saying—"Do not ask others to do what you can easily do yourself." To this may be added, "Do not use a machine that neither improves quality nor lightens labor." To thoroughly understand the problem of firing a Hoffman continuous kiln automatically, it must be borne in mind that there are some fifty or more firing pockets, which must be (consecutively) attended to for some fifty hours or more. Each pocket must be fired and observed individually and all collectively to make one harmonious whole. The reader will further understand the difficulty encountered for automatic firing when he knows that the average amount of standard size brick which each firing pocket provides fuel for is but 750 brick. The operator of a continuous kiln of the character mentioned will be continuously busy regulating the amount of fuel, fed to each 750 brick and as no two firing holes can be fired exactly alike, I venture to say that the little exercise of dropping a handful of coal every 20 minutes into each fire-hole is more expedient than continually manipulating a constantly moving machine made for this purpose. Now, with a continuous compartment kiln in which there are furnaces that provide fuel for from 7,000 to 12,000 brick, the mechanical or automatic firing device can be used to advantage. In firing a kiln of 50,000 brick there are but two chambers to fire at one time, five firing holes in each chamber and each provides fuel for 10,000 brick, on a line across the kiln. And the use of an automatic heat-registering device, in this case, as suggested by the editor of "Brick and Clay Record," would be a decided advantage. The principles employed in feeding clay to a brick machine, in a sand box attached to the front of an auger machine, in the oscillation methods of regular feeding of other materials for different purposes, or in the conveying of lighter fuel by means of air through suitable conduits, might also be used for the purpose of mechanically feeding for the burning of brick in the continuous compartment kiln. As this subject is open for discussion it would be well for those who have good ideas on the subject to ventilate them.—William A. Butler, Oakland, Calif.

Clean Fires Prevent Wash.

Some bad cases of kiln white-wash can be cured by cleaner, more open fires and clean ash-pits. An idle kiln generally means a loose link in the clay-plant machine.—H. L. L., Chicago.

Long Handled Shovels.

Long-handled shovels impair the efficiency of the men in the clay pit. Short handles are better. The power usually is two feet from the fulcrum in the former and the fulcrum three feet from the load—a ratio of 2 to 3. The ratio is 2 to 1 with the short handle.—J. G. W. Tennessee.

Use Thermometers in Waste Heat Dryers.

A rcording thermometer will help to keep your dryer at

THIS IDEA WINS $5 PRIZE

A. R. Foxley, 159 Twelfth Ave. East, Vancouver, B. C., wins the $5 prize for the best suggestion submitted this issue. It follows:

The enclosed sketch shows a clay car, and its operation, which I have used with great success on various yards and as I have never seen this car in operation elsewhere, or illustrated in any brickyard appliance catalogue, I believe it will be of benefit to your subscribers, as one of the greatest sources of trouble is the handling of the clay. This car eliminates all of the usual difficulties encountered in side-dump, bottom and end-dump cars.

First—it can be operated absolutely automatically.

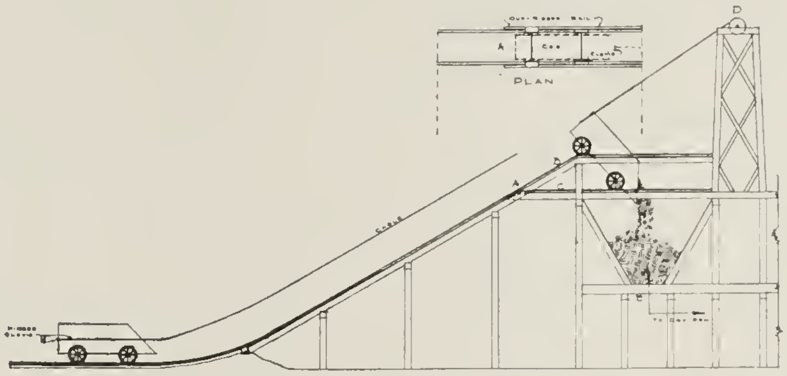
Second—Gives absolute clearance, no matter how wet the clay is.

Third—It is low in height, thus easy for the shoveler.

Fourth—It is not top-heavy, and has a tendency to hug the track and therefore will follow the rail, no matter if the track is not perfectly level.

Fifth—It is inexpensive and easy to construct, as it can be built of wood if desired. In that case the only ironwork would be the axles and the wheels, and the blae and fittings.

The sketch shows sufficiently clear how to build it; also how to operate it, the distinguishing feature being the wheel treads; the front wheels being any standard tread, say 2½ inch. The rear wheels would in that case have a 5 inch tread. The main track can be of any gauge and is carried up on an incline to the points marked "A." It is placed horizontally from there on. Then at a point (A) on each side of track there are placed the two outrigger rails (B) which follow the same incline as the regular track and are placed at sufficient distance to allow a clearance at the tread of the front wheels. The operation then is as follows: The car following the incline to a point (A the front wheels going in on the tracks (C). The rear wheels, having the wider tread ,engage the outrigger rails (B bringing the car to a vertical position and dumping the contents. The car then being released travels back to the pit by gravity. The winding drum (D) is operated in the usual manner by the operator at the crusher, which is situated immediately below the bottom of the storage bin at E.



Have you a better idea? Send it in. It may help a fellow clayworker and at the same time win the $5 prize. You are sure at least of getting $1 for your trouble. Address: Superintendent Department, "Brick and Clay Record," Chicago.

the best temperature. In waste-heat tunnel dryers this can be placed in the hot duct between the fan and the dryer. From 350° to 400° F. will dry brick so that they rattle like bones and yet not burn wooden decks.—H. L. L., Chicago.

Keep Everything at Full Capacity.

Idle men and machines do not make money for their employer. Efficiency means getting a full measure of energy. A certain clay plant used a drum and incline to get the raw material from the pit to the factory. It was several hundred feet from the foot of the incline to the pit. A loaded car was hauled to the foot of the incline and hooked up to the cable, and the empty was hauled back to the pit. While waiting for this empty nine or ten men were idle. This idleness amounted to nearly one working day each day for the ten men. A few weeks cost the plant, in lost energy, enough to buy another car, which would have kept an empty car in the pit and the men busy. Figure up your own plant —you may be losing energy at even a worse rate than this. —J. G. W. Tennessee.

Oil Your Cable

Keep your cable well oiled. It will keep soft and pliable, and last twice as long.

Hints for the Burner.

Never set a poor brick. You certainly cannot expect to get a No. 1 brick out of the kiln if you do not set No. 1 brick. Do not crowd your water smoking. Half the secret of brick-making is in the water smoking. Thousands of brick are ruined by water smoking too fast. Dry your brick in the drier. It never pays under any circumstances to set wet brick, and worse of all to set dry brick one day and wet the next.—N. Hermes, Redcliff, Alberta.

When Gears Do Not Mesh Properly.

Builders of heavy machinery are often severely criticised because of improper meshing of gears. In nearly all cases the trouble is caused by one of two things, either the shaft has become bent, or the boxes need babbitting. It is as a rule a small job to remedy this condition and it should be done without delay. Procrastination will cause excessive wear on the teeth and ultimately break them. Heavy gears are expensive enough to warrant every care being taken to protect them against such a useless strain.—W. W. P.

Believes in Co-Operation.

C. L. Smith, manager of the American Brick & Tile Company, Mason City, Iowa, states that in co-operating with the dealers they are pleased to furnish booklets on drainage, together with a number of attractive circular letters from farmers and heavy users of drain tile. A number of large county jobs, secured by this company, has received mention in magazines and newspapers, which has been reprinted and distributed among the trade. The silo block manufactured by this company is receiving especially good attention. They are pleased to co-operate with dealers in the sale of them by furnishing circulars and samples.—Dealers' Record.

Avoid Dust Floor Under Dry Pans.

Do not build a dust floor under your dry pan. Make your elevator pit 12-ft. deep and slope the pit under your dry pan from the back of the pan to the elevator pit. Your shale will run there to the elevator by gravity. It saves expense of dust floors and scrapers under pan and also saves power. Most elevator boots are hard to clean out in case of a choke down. Do not have a boot at all, just a pulley. Run your elevator leg nearly to the bottom, in case of a choke you can get under your pulley all round. Have your elevator pit large enough, so a man can work around the pulley with a shovel. Most of them are too small, they should be at least eight feet square.—N. Hermes, Redcliff, Alberta.

Troublesome Thrust Bearings.

The design of the thrust-bearing on auger machines has been the object of much care to the builders of these machines but in spite of this the continual heating in many cases has caused much annoyance to the users, and not a little expense. The trouble has been greatly relieved, in some cases, by drilling a hole through the back of the box and on through the steel back piece and through the disc. Into this hole put a small pipe and attach a screw top grease cup. This cup is made with a spring on the inside to force "hard oil" through. Grease of the consistency of lard is used in these cups. Any reliable dealer should be able to supply the grease.—W. W. P.

Blue Prints—Their Importance.

Every clay product manufacturer should have a blue print of each machine, showing the number of each casting. Much time and annoyance in ordering can be saved. The machine becomes greasy, the numbers obscured and are hard to make out, on the machine. If a blue print, showing the casting and the number, is at hand, the ordering is simple and certain. It is not even necessary to write a letter with such an order. For instance: "Send M-7008," is just as clear to the machine manufacturer as it would be if a long letter giving a detailed description of the casting required were sent. The advantage in ordering by telegraph is also decided and much cheaper. Any manufacturer will furnish such blue prints of machines as he builds without charge, to the owner of the machine.—W. W. P.

The Use of Recording Instruments.

In the hands of an engineer almost all recording instruments are valuable. I refer particularly to those instruments designed to aid the burner. The woeful part of it is, that the burner is seldom a man who either appreciates or understands the use of these instruments. The burner who depended, for instance, wholly on a pyrometer or cones or a hygrometer or anything of the kind very likely would have a rather costly failure. A pyrometer can only indicate the heat—the degrees of heat in one particular spot. A cone does not say, by the fact that it is supposed to melt at 1,940 degrees Fahrenheit, that the temperature of the entire kiln is at that temperature. Neither does the fact that the heat has reached a certain point indicate that the ware is burned. It may be that the ware would have to be kept at the same temperature for twenty-four hours or for a week. No scientific instrument would be of great value without some practical experience, but a practical men with a scientific education would find that burning could be brought to a more exact science with the instruments than without them. It is not meant, either, that such things as cones, for instance could not be used to advantage by almost any burner.—W. W. Phillips, Galion, Ohio.

Machine House has Good Year and Is Hopeful on 1914 Outlook.

By J. C. STEELE & SONS.

We are well pleased with the year 1913. We have had all the business we could take care of without rush. We have already booked more orders than ever before at this time of year, and the indications are that our new year's business will necessitate an increase in our facilities. It was a considerable proposition to secure steel during the last year but we do not look for any trouble along this line the coming year. We congratulate you on the service you have rendered during the past year.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

Contributing Editors: Prof. Charles F. Binns, Ellis Lovejoy, C. E., Anton Vogt, C. E.

THE most faithful representation of what takes place in a furnace of any kind is given by the analysis of the gases as they flow into the stack. It gives an accurate record of just what efficiency has been attained, whether too much or not enough air has been admitted. And yet many clay plants seem to ignore this valuable aid entirely and do not seem to care whether or not they are exercising fuel economy. Much fuel is wasted simply in heating up the excess air used in burning.

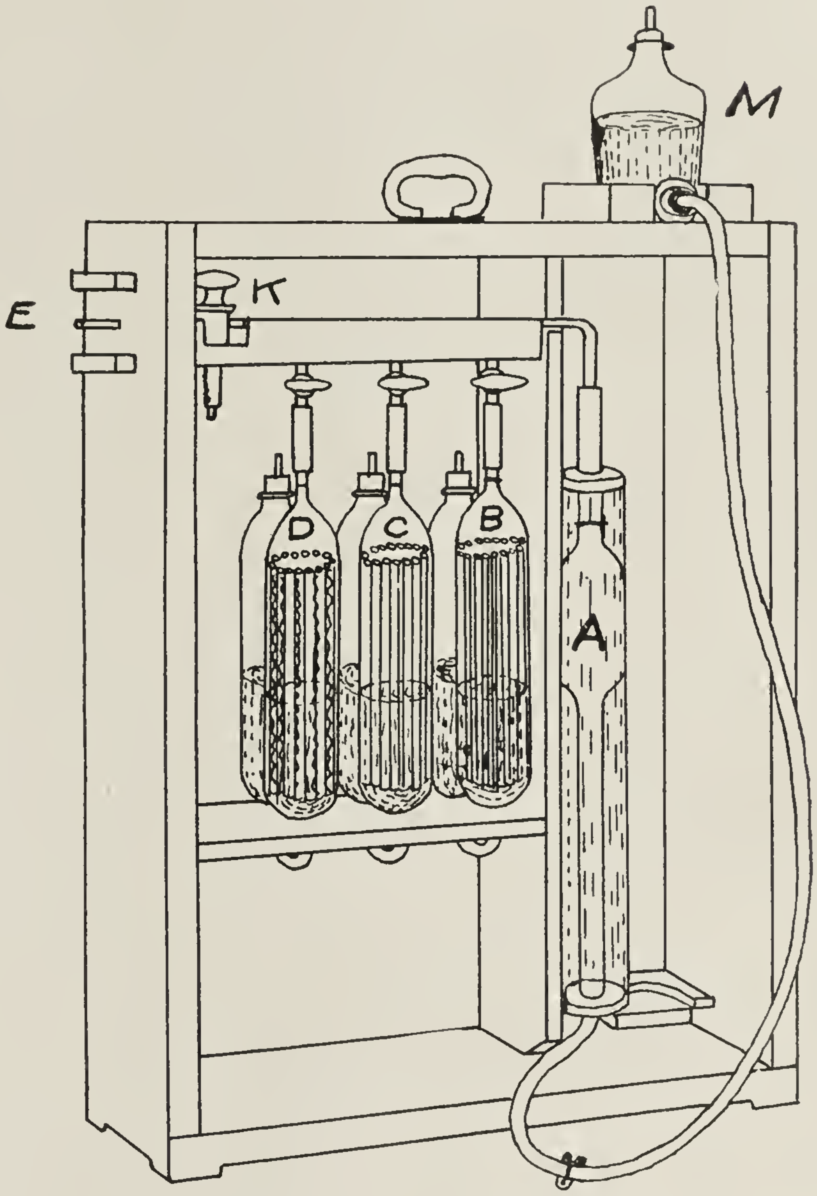
Gas analysis is carried out by means of the well known Orsat apparatus (see sketch), requiring but little time or trouble. The manipulation is quite simple and with little practice a gas analysis can be made in a short time.

The measuring tube, a, has a capacity of 100 cc. and is graduated to 1/10 cc. This tube is water jacketed so that the gas may quickly come to a constant temperature. The absorption bulbs, b, c, and d, contain glass tubes, so as to give a larger absorbing surface to the reagent. Each of these bulbs is connected with a similar bulb of the same capacity which can be partially seen from the sketch. The reagent forced out of the bulb in front of the gas passes into the one in the rear.

These bulbs contain materials which have the property of absorbing different gases, and the principle involved then consists merely in drawing a known quantity of gas, 100 cc., from the kiln and allowing it to pass into these bulbs and then drawing it back into the measuring tube A and noting the amount absorbed. For example, the bulb marked b contains a strong solution of caustic potash (KO_4) which absorbs the CO_2, the bulb e contains an alkaline solution of pyrogallic acid, in which the O is absorbed. The former solution is best made as required by dissolving 23 grams (or 1½ sticks of the usual make) of pure caustic potash in 140 cc. of distilled water. This solution should be transferred to the absorption bulb, which holds about 150 cc., without delay or exposure to air. It is not advisable to make large quantities of this solution at one time. If stored in bottles it rots the corks and absorbs the carbon dioxide from the atmosphere; while, if kept in stoppered bottles, it causes the stoppers to bind themselves fast in the necks.

The pyrogallic acid solution is made by dissolving 20 grams of pyrogallic acid in caustic potash solution (150 cc. prepared as above) and when cold is poured upon the weighed amount of pyrogallic acid contained in a small flask. This must be kept corked while solution occurs and the solution must then be quickly transferred to the bulb marked c.

The solution of pyrogallic acid in caustic potash is of a dark brown tint and deepens rapidly in color as it becomes further oxidized. It absorbs oxygen rapidly when warm, but slowly in the cold. The Orsat apparatus should, therefore, be kept in a room rather above the normal temperature when making a test.



ORSAT APPARATUS

Bulb d contains a solution of cuprous chloride, which absorbs any carbon monoxide (CO) present in the sample. This solution is made up by dissolving cuprous chloride crystals in water to which has been added a few cc. of strong ammonia.

The bottle M is filled with water and it can be readily seen that when it is open to the measuring burette A, air or gas can be drawn in or forced out of the latter, when stop-cock K is open, by merely lowering or raising the bottle, the water serving as a displacing medium.

Having seen that all rubber connections and cocks are air tight, the first step in the manipulation is to draw the reagents in the absorption bulbs up to the marks on the necks. To do this, close all the stop cocks, except, of course, the one on the bulb in question. Then if the bottle M be raised it is obvious that the liquid will rise in the absorption bulb; when it has reached the scratch on the neck, the stop cock is then closed. By this method, the reagent in each bulb is drawn up to the mark and the stop-cock is closed.

Before using the apparatus all the stop cocks and rubber joints must be first tested for leaks by bringing the solution in the absorption bulbs to the zero marks on the capillary stems and closing the stop cocks. If after a few minutes the liquid has fallen in any of the bulbs, the stop cock or rubber connection leaks, and the key of the former must be removed, cleaned, lubricated with vaseline and the rubber joints made tight by wiring the rubber in the glass tubes. The stop cock K and the rubber connections with the measuring tube are tested by bringing the water in the measuring tube to the zero mark on the upper capillary by holding the level bottle at the same height. On closing the stop cock K and lowering the bottle, no air should enter the apparatus as indicated by the height of the water column when the bottle is again raised.

The sample is now ready to be drawn. A 3/8-in. iron tube, perforated at the collecting end, is put into the exit flue between the kiln and the stack and then connected by rubber tubing to tube marked (e) in the sketch. In doing this it is best to draw samples a few minutes before, then during and also after firing, making, say, three an hour. Assuming that 30 analyses are thus made during a working day, their average would give a fairly accurate conception of whether you were burning your fuel correctly or not.

The stop cock K is of the two-way type, capable of being opened both to the kiln and to the air. This cock is now opened to the kiln and by raising the bottle M, the gas is drawn into A. When the water has fallen to the zero mark, the tube then contains just 100 cc. of gas. K is then closed to the kiln and opened to the air and the bottle lowered, forcing the gas out; this is repeated two or three times, in order to be sure that all air has been expelled from the aparatus and that it contains nothing but kiln gases. When the sample has finally been drawn, the water having been brought to the zero mark by raising the bottle, the cock K is closed, the bulb b opened, the gas made to travel backward and forward about three times between A and C, by alternately raising and lowering the bottle M, the water being raised to the 100 cc. mark the last itme to insure all of the sample being driven into B. The liquid in b is then drawn up to the mark and the cock closed. The sample is then drawn back into A, the water brought to a common level in both the bottle and the tube, thereby keeping the gas under atmospheric pressure and the reading observed. The decrease in volume of the 100 cc. represents the per cent of carbon dioxide gas in the gas sample. With fresh caustic potash solution, the absorption of carbon dioxide is rapid; when the solution has been used for some time, the absorption is, of course, relatively slower. It is necessary, therefore, to repeat the absorption procedure, and to make two measurements of the residual gas, in order to be certain that all the carbon dioxide is removed.

For the determination of the oxygen, the same process is repeated in the absorption bulb c, the others being closed, of course, where the alkaline pyrogallic acid absorbs the oxygen. Here again at least two absorption measurements of the residual gas must be made in order to be certain that all the oxygen has been absorbed.

The carbon monoxide (CO) is determined by the same procedure, the gas being passed into d, containing the cuprous solution.

For all practical purposes we can consider the flue gases to contain only nitrogen (N), oxygen (O), carbon dioxide (CO_2) and carbon monoxide (CO).

After having made the analysis the results, of course, are worthless unless their significance is understood. It is advisable then to endeavor to explain what the per cent O or CO may mean and how to make the simple calculations involved. But in order to show the relations existing between the air admitted and the per cent by volume of carbon dioxide, oxygen and nitrogen given by the analysis, a short discussion of the principles governing the evolution of gases from the fuel will be found advisable.

The one constant factor in the gas analysis is furnished by the nitrogen, which undergoes no change, being chemically inert, and hence it furnishes the most reliable basis for the calculation of the air admitted in the combustion of the fuel. The proportion of nitrogen present in the air to the oxygen content of the latter is always in the ratio of 9:21, by volume, or for every volume of oxygen we have 3.76 volumes of nitrogen. Then, if we let N be the total per cent of N shown by the analysis and O the per cent of oxygen determined, the amount of air actually made useful in the combustion can be determined from the relation, $n_1 = N - 3.76 \times O$, where n_1 represents the amount of nitrogen in the air necessary for combustion. The per cent of oxygen found (O) multiplied by 3.76 gives us, as explained above, the amount of nitrogen in the air not used for combustion. Then evidently this nitrogen subtracted from that shown by the analysis gives us the nitrogen in the air actually used for combustion. Thus, without calculating the amount of air itself, we can obtain the ratio between the air introduced and the air used, by employing the ratio of the nitrogen brought in and the nitrogen of the air really deprived of its oxygen, which is the same thing as if we compared the volumes of air proper.

In this manner the ratio of the total and the useful air is obtained by the expression $N + (N - 3.76 \times O)$. We can readily convert this into per cent by multiplying the numerator by 100, making the expression $100\ N + (N - 3.76/O)$. We must remember that N here is always the per cent by volume of nitrogen as found by the gas analysis and O the per cent of oxygen. The resulting expression is either above or below 100, depending upon whether the conditions of firing are oxidizing or reducing. For theoretically perfect conditions, that is, when just enough air has been admitted to burn the fuel, no oxygen is shown by the analysis, and consequently the ratio is $100\ N + N$ or 100. Therefore, 100% of air is the ideal towards which all in charge of purely heat producing furnaces must strive. If, for example, a ratio of 160% is shown by the above calculation, it tells that an excess of 60% of air has been admitted.

On the other hand, an amount of air lower than 100% stands for a deficit of air proportional to the lack of oxygen. Such an analysis shows but little oxygen and indicates the presence of combustible gases, especially of CO. Any amount of combustible gases present will thus represent minus oxygen, so that the formula becomes $100\ N + (N - 3.70\ O)$ or $100\ N + (N + 3.76\ O)$.

To illustrate, a gas analysis shows the following composition by volume:

	Per Cent
Carbon dioxide	15.0
Carbon monoxide	5.0

Oxygen	0.3
Nitrogen	78.0

Carbon monoxide represents an unburnt gas, requiring for complete combustion half its volume of oxygen, or $5.0 + 2.5$ volumes of oxygen, which are needed. It is therefore minus in sign. But since the analysis shows .3% of free oxygen, the amount of oxygen needed, or the minus oxygen, will be $2.5 - .3 = 2.2$. Substituting in the formula we have $100 \times 78.0 \div 78.0 = (3.76 \times 2.2) = 90.4\%$ of air admitted, or the deficit of air shown by this analysis is 9.6%. These simple calculations are the ones most commonly required in the examination of the firing conditions of boilers and kilns and all the data for it are furnished by the Orsat apparatus.—Charles S. Kinnison.

PUG MILL KNIVES.

That the output and efficiency of any brick machine depends especially upon the type and arrangement of the auger blades, few clay workers seem to appreciate.

Broadly speaking, all types of blades are included in two general classes, viz.: (a) those that have propelling action and accomplishing but little in the way of mixing the material, and (b) those whose action is one of mixing and whose propelling action is but slight. The type that is suitable for one, is, of course, not adaptable to the other.

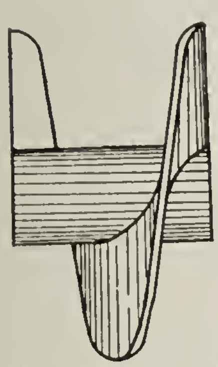


FIG. 1- FULL SPIRAL

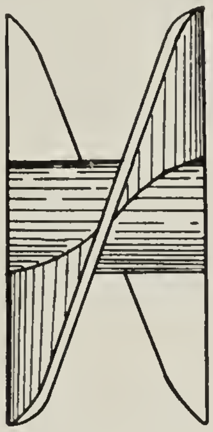


FIG. 2—TWO-WING

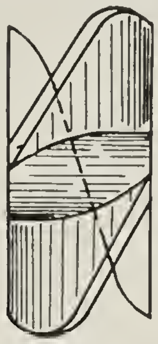


FIG. 3-THREE-WING

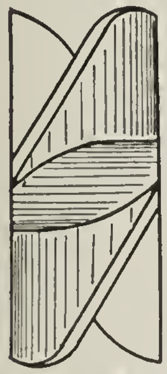


FIG. 4- FOUR-WING

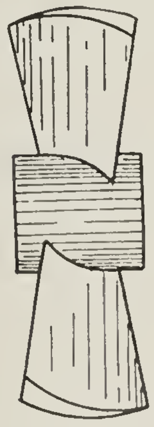


FIG. 5-MIXING-WING

It is obvious that the output of any given machine varies directly with the size of the auger, or, in other words, the larger the amount of pressure-exerting surface, the more the output and vice versa.

Fig 5 illustrates the common type of blade that is used for kneeding or mixing, and having but slight propelling motion, as is evident from the sketch. The type illustrated by Fig. 1, on the other hand, is one capable of a large output, with but very slight kneeding action. This type is illustrated by the ordinary screw conveyor or continuous worm. The material is kept moving continuously forward, there being no opportunity offered for its motion to be backward or intermittent.

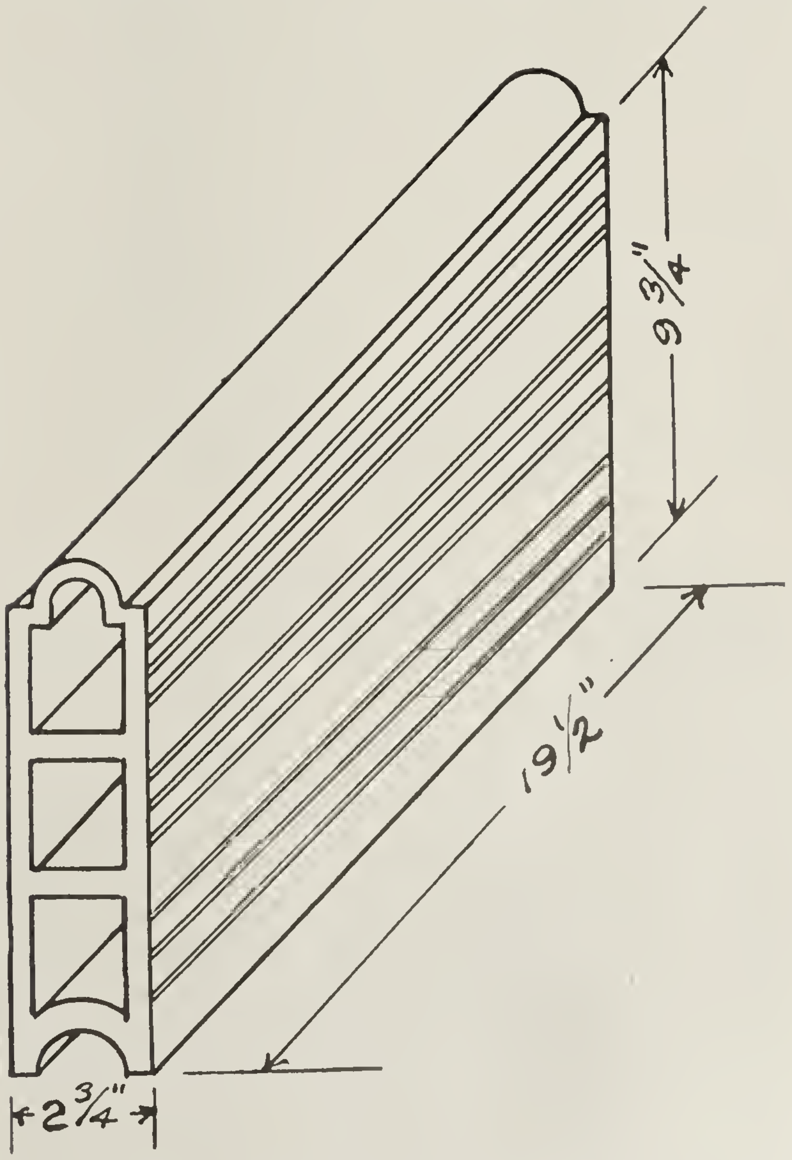
An auger of two wings, as shown by Fig. 2, has breaks in its pressure-exerting surface, which gives the clay an opportunity to be worked backwards, every half revolution of the shaft. The clay is always under high pressure, especially in the nose of the machine, and naturally avails itself of any break in the pressure-exerting surface to relieve this compression. If the auger is of the three or four winged type, the clay has just that much more opportunity to work backward, which results in an intermittent advance of the clay bar. In reality these pauses are scarcely noticeable, since the material is under pressure, but an experienced eye can detect it, especially if the clay in question is of slight plasticity.

When it is desired to have the clay well kneaded, and at the same time have a reasonably large output, it is plain that this can be accomplished by a judicious arrangement of both types of blades on the same shaft, care being taken not to have the mixing type in the majority, when large daily output, and not thorough mixing, is the criterion.—Tonindustrie-Zeitung.

POROUS PARTITION BLOCKS.

The profits of the brick manufacturer can, through competition, slow building activity and similar causes, fall to such a point that he must resort to the manufacture of some side line to tide him over the depression. In such cases, it is well, of course, to select as a side line the manufacture of an article which offers little or no competition to the brick industry.

A German clay worker relates his experience in this connection. As a side line he found that porous partition blocks of the tongue and groove type were profitably and easily manufactured. The blocks are about 19½ in. long, 9¾ in. wide and 2¾ in. thick, being of such size that eight of them are equivalent to 1 square meter (1.2 sq. yds.) of surface. The equipment necessary for their manufacture requires an investment of about 1,585 marks, it is said.



With the Clay Plants

A Department Wherein is Set Forth Factories Erected or Contemplated, Recent Incorporations, Improvements and Enlargements, and Any New Ideas That May Be of Benefit to Others

OUT in the Salt Lake Valley, the land of 'dobe, dry-farms and irrigation, is a great brickmaking plant, larger than any in Europe, and yielding first place in the United States to one other plant only. Its yearly output would make a six-foot sidewalk from New York to Chicago. If laid end to end the continual stream of brick coming off the traveling belts would extend from those belts to the coast, across the Pacific and into the center of the Chinese Empire. Loaded onto one train of freight cars the locomotive and the caboose would be forty miles apart.

Each day's operation turns out sufficient brick to build 15 five-roomed cottages. The annual production would build an office block of 4,000 rooms with walls two feet thick.

Three hundred thousand bricks is the daily capacity of this great plant, and that stupendous quantity is formed from the raw clay almost without any human labor, for the machinery is altogether automatic. At the east end of the great brickmaking house the clay is dumped from cars which come in on a high trestle. At the west end endless belts are bringing out a continuous stream of brick. Between the two ends scarcely a man will be found.

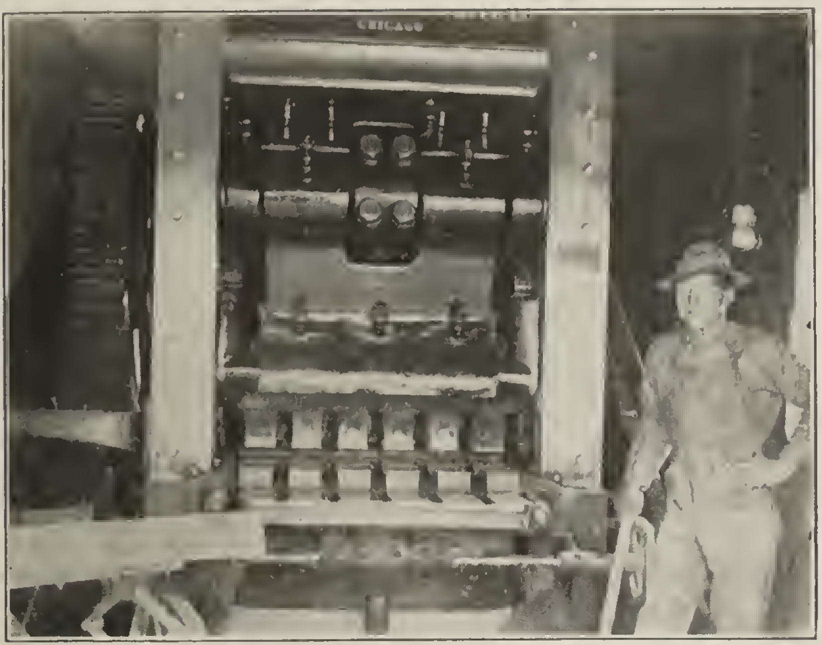
This wonderful machine-operated plant is that of the Salt Lake Press Brick Company, of Salt Lake, Utah.

A trip through the plant shows a simplicity and thoroughness of systematic operation which seems to be impossible to improve. Adjacent to the machine house and kilns are two hundred acres of land from which the clay is obtained. Here we find a hundred horse-power electric motor operating a cable-power shovel which scrapes a wagon load of clay from any and every point within a radius of three hundred feet, bringing it over a depressed track and dumping it into trains of cars below, electrically propelled. Jumping on one of these cars we reach the great forming-shed. The clay is instantly dumped onto an inclined platform and works by gravity down into chutes which conduct it into great crushers or disintegrators from where it is carried on wide endless belts to the sieves. Here all stones and hard lumps are caught and turned out and the clay—again on belts—goes to the machines.

Views in the Drying Sheds—The picture on the right shows the crane setter putting a load of brick in the dryer.

Two classes of bricks are made here—the wire-cut and the pressed. There are two wire-cutting machines and four presses and the clay is automatically distributed onto six belts and conveyed to the machines.

Up to this point we have only seen two men at work; one at the clay-dump watching, bar in hand, to see that no choking occurs as the material works into the chutes; the other watching the automatic wire-cutting machine. And yet, brick are coming from that machine at the rate of one hundred thousand each day.



(*One of the Big* 200-*Ton Boyd Presses in Use.*)

Now, however, there is some handling to be done. The soft brick are picked off the traveling belt by boys and piled up on a long low frame, until two thousand brick are so piled. Then a traveling crane runs overhead, and dangling from the chains is a strange, almost human-clutch, which picks up those two thousand brick and deposits them on the floor of the dryer. One man in the crane cage, twenty feet above, operates the gear levers and does the entire work.

The same crane again picks up the dried brick and carries them into the continuous kiln, which holds two and a half million brick.

There are two of these kilns, one being fired while the other is being emptied and refilled.

So much for the wire-cut brick, which are sold as building brick. We return to the machine house and view the making of the pressed brick—the star product of the company. The clay is brought by belts to the rear of the powerful presses, of which there are four with a capacity of thirty thousand each per day.

These pressed brick are picked off the press tables by men, placed on small trucks and run into tunnel kilns, close by.

In addition to the regular building stock, there are made a great number of hollow or perforated bricks, which are used for partitions, floors and arched ceilings. These are formed in special presses and baked in the manner described for wire-cut bricks.

It will be seen that in the operations at this plant no human hand touches clay until it is a finely formed brick. With the exception of an attendant at each machine to watch its operation and occasionally tilt an oil can, there is not a skilled man used, and considering the perfection of the product it is doubtful if any other manufacturing industry can show such intensive automatism with such fine results.

Electricity is the Hercules; the power being produced on one of the mountain torrents of the Wasatch Range, four miles east of the plant.

In the distribution of the product the same system of ingenious labor-saving details is in continual use. A spur-track of the Denver and Rio Grande Railroad runs close to the great kilns and shipments are made daily to all parts of the Intermountain region and Colorado. For local delivery six-ton auto trucks are used, although these have been adopted only recently. Last year nearly two hundred heavy freight horses could be seen every night in the company's stables.

Plant Operates a Railroad

The American Fire Brick Company, of Spokane, Wash., is one of the real alive and aggressive clay plant corporations on the Pacific coast. This concern manufactures salt-glazed sewer pipe, fire brick, drain tile, wall coping, mica white and cream face brick and Denison tile, and owns and runs a railroad as an auxiliary to the business.

The railroad is completely equipped with locomotive and railing stock and transports fire clay from the pit some miles away to the plant. Charles P. Oudin, the president of the American Fire Clay Company, is also the president of the Mica Peak & Southern Railroad, and apparently has little fear of the Interstate Commerce Commission, for he openly advertises his railroad in all his newspaper advertising of his products and invites all who may read to ask for free passes.

CHARLES P. OUDIN

Mr. Oudin is not only the president of these two corporations but he also is president of the Buying-at-Home League of Spokane, being only recently honored by election.

The American plant is located at Mica, Wash., but the general offices, salesrooms and warehouses are in Spokane. The salesrooms are models and are practical demonstrations of the various clay products manufactured.

On the succeeding pages is the news of the Clay Plants—Little items of general and personal interest.

The Composite Brick Company, of Jacksonville, Fla., a new sub tropical sand lime brick corporation recently established, is looking forward to 1914 with much encouragement. E. R. Wood, secretary and manager of the concern, writes that his sales now are more than 150,000 brick per week, as against 20,000 in July, August, September and October, and the outlook is so rosy, his company is considering increasing the plant capacity from 60,000 per day to 120,000. The plant is equipped with the American system, consisting of a battery of two wet pans and mullers for feeding an American rotary press and a vertical press and has a capacity of 35,000 brick daily. More than twenty men are employed and the monthly payroll exceeds a thousand dollars. A company of the same personnel and making a similar brick, has for a year been operating at Plant City, and the popularity of its product has compelled it recently to install machinery which doubles the capacity.

NEWS IN BRIEF.

The plant of the Ludowici-Celadon Company, south of Chicago Heights, was partly destroyed by fire Nov. 26.

The San Antonio Sand-Lime Brick Company, of San Antonio, Tex., has filed proof of the final payment of its stock.

Johnson & Johnson, of Raleigh, N. C., are building a new brick plant, with a capacity of 100,000 daily.

J. S. Poythress has headed a company to establish a brick plant at Henderson, N. C.

The Louisville Pottery Company, of Louisville, Ky., is in the market for a second-hand pug-mill for use in making experiments at its plant.

John Kleimeyer, J. L. Ebner and W. A. Oliphant, of Vincennes, Ind., have secured control of the Loogootee (Ind.) Brick & Tile Works.

George W. Crouse, Jr., of Akron, Ohio, has completed the formation of the Crouse Clay Products Company, with a capital stock of $50,000.

D. B. Gurney, Wm. J. Fantle, S. H. Hohf, J. A. Danforth and Edw. C. Klopping have incorporated the Yankton (S. D.) Brick & Tile Company, with a captial of $50,000.

R. A. Weiss, 443 Golpp St., Bethlehem, Pa., writes: "I have been referred to you by the U. S. Department of the Interior. Am interested in developing some brick clay."

The DeCamp Block Coal and Clay Company has been incorporated at Brazil, Ind. The capitalization is $10,000 and the directors Mary and Arthur DeCamp and Richard Watkins.

Plans have been prepared by the Robinson Clay Products Company of Akron, Ohio, for a three-story brick addition to its brick plant at Farrell, Pa.

The enameled brick works at Morgan, N. J., were sold to Comegys Brothers of Perth Amboy, N. J., for $20,035, this being the highest bid made at the receiver's sale.

The Veedersburg Brick Company, of Indianapolis, Ind., has been incorporated with a capital stock of $50,000. The directors are C. A. Pritchard, F. B. Adams and C. B. Marshall.

Announcement is made of the incorporation of the Canadian Fireproofing Company, Limited, Quebec, P. Q. Capitalization is $250,000. Names of incorporators have not been announced.

It is rumored that the J. B. Owens Floor and Wall Tile Company will soon break ground for a $150,000 plant at Metuchen, N. J.

The Peoples Brick Company, of Newbern, Va., has been incorporated, with an authorized capital of $10,000—$6,000 subscribed—by N. M. Gibbs, John Rhodes and C. T. Marcham.

W. G. McCrimmon, of Windsor, Ont., writes he is about to start a brickyard near that city and is interested in burning systems. He is a broker and has his office in Windsor.

James H. Conley, of Little Rock, Ark., has purchased the interest of W. C. Hall in the plant of the Dardanelle (Ark.) Brick & Manufacturing Co. Improvements will be made at the plant and it will be started up in the near future.

The Higginsville Brick & Tile Company, of Higginsville, Mo., is in the market for a full equipment—from clay gatherers to motor trucks. Belting, dryer equipment and tramways are included. It also wants to know something about clay analysis.

The Benton pottery, on the Military Road, near Benton, Ark., was destroyed by fire November 26. The loss is estimated by C. D. Hyton, who owned the plant, to be about $2,000, without insurance.

The plant of the McMillen Brick Company, near Pine Barren, Fla., was destroyed by fire Nov. 27. This was the largest plant of its kind in West Florida. The loss is $15,000, with but little insurance.

The Monument Pottery Company, of Trenton, N. J., is contemplating the enlargement of its plant in the near future. According to present plans, the new building will be erected on the Trenton side of Isham Avenue.

Joseph E. Grinder, of 1001 First street, S. E., Washington, D. C., expects to start up the brick yard and make common hand made brick. The Grinder estate has been in the courts and the plant has been closed three years.

The Kingsport Brick Company, of Kingsport, Tenn., is said to be contemplating plant increases which will double its present monthly capacity of 2,500,000 brick. J. Fred Johnson, of Johnson City, Tenn., is president of the company.

The Chase Brick & Tile Company, at Bradnock, Va., was incorporated, with F. N. Mallory, of Lawrenceville, president; D. B. Pennington, of Brodnax, secretary and treasurer, and C. B. Chase, of Lawrenceville, general manager.

The Athens Pottery Company, of Athens, Tenn., contemplates increasing its capital stock from $25,000 to $35,000, for the purpose of securing funds with which to enlarge its plant. This work will be done, if possible, during the customary Winter shut-down.

The Federal Clay, Coal & Lumber Company, of Wilmington, Del., has been incorporated to mine and excavate for rock, clay, silica, sand, etc., the incorporators being Herbert E. Latter, W. J. Maloney and Oscar J. Reichard, all of Wilmington. The capitalization is $200,000.

The Westfield (Mass.) Brick Company is making plans to turn its product into face brick. Clay experts have found that the deposits at Westfield will make high grade vitrified brick of good color and new machinery will be installed with this end in view.

C. W. Brannan, one of the directors of the Enamel Vitrified Brick Co., Toledo, Ohio, which has plants at North Judson, Ind., and St. Petersburg, Fla., writest that he expects "to put in plant on the coast in 1914." His address is care The Ohio Cultivator Co., Bellevue, Ohio.

The DeSoto Brick Company, of DeSoto, Ala., with offices in Birmingham, Ala., has filed articles of incorporation, showing a capital stock of $5,000. It will manufacture brick. The incorporators are J. E. Reager, Sam North, of Morris, Ala., and A. A. Ray.

Martin N. Kimbell, Christopher J. Hill and Arthur W. Kimbell have incorporated the Kimbell-Hill Brick Company, to manufacture and sell brick and other building materials. The office will be in Chicago, and the company is capitalized at $10,000.

J. R. Thomas, superintendent of the Crawfordsville (Ind.) writes "Brick and Clay Record" for a list of books that deal with the manufacture of brick from shale. From the nature of his queries, it would seem that he is contemplating going into the brick manufacturing business.

Incorporation papers have been filed by the Ajax Brick Company, of Detroit, Mich., with a capital stock of $100,000—paid in $50,000 in property—the principal stockholders being Charles B. Davis, Albert F. Bull, Charles W. Munz and Henry J. Herbert.

A committee of citizens of Sandusky, Mich., has been appointed to investigate nearby brick plants, with the idea of starting one in Sandusky. Henry Balhoff is chairman of the citizens' committee, W. H. Eppleft, secretary and R. J. Loree, treasurer, all of Sandusky, Mich.

The finding of a large deposit of buff shale northwest of Blackwell, Okla., will result in that city's having a new brick plant. The promoters are J. L. Waite, E. H. Peine and L. H. Thompson, all of Blackwell. The plant will be equipped with electrical machinery.

At a meeting of the board of directors of the Bessemer Limestone Company, of Youngstown, Ohio, it was determined to make a 60 per cent increase in the capacity of the plant at Bessemer, Lawrence County, Pa. Work will be started at once, C. C. Blair stating that the completed plant will be ready for operation not later than July 1, 1914.

The American Fire Clay Company, with offices in Cleveland, Ohio, and plant at Loveland, Ohio, has increased its capitalization from $250,000 to $400,000, the additional capital being required for the erection of a paving brick plant, and, later on, a plant for fireproofing. B. T. Day, of Cleveland, is president and H. J. Baldwin, secretary and treasurer.

The West Virginia Paving and Pressed Brick Company will expend $50,000 for improvements, which will include two updraft and one down-draft kilns, increasing the daily capacity from 40,000 to 100,000 brick. Three dryer tunnels will be added to the nine that are now in operation. An additional pug-mill and additional power will also be provided for.

Alhorn and Waller, of Henderson, Ky., have sent a quantity of clay from their tile yards in Kentucky, to Bucyrus, Ohio, for analysis. If the analysis proves satisfactory, it is said that these gentlemen will erect a number of new kilns and start a brick plant with a 25,000 daily capacity. The test will be completed about January 15.

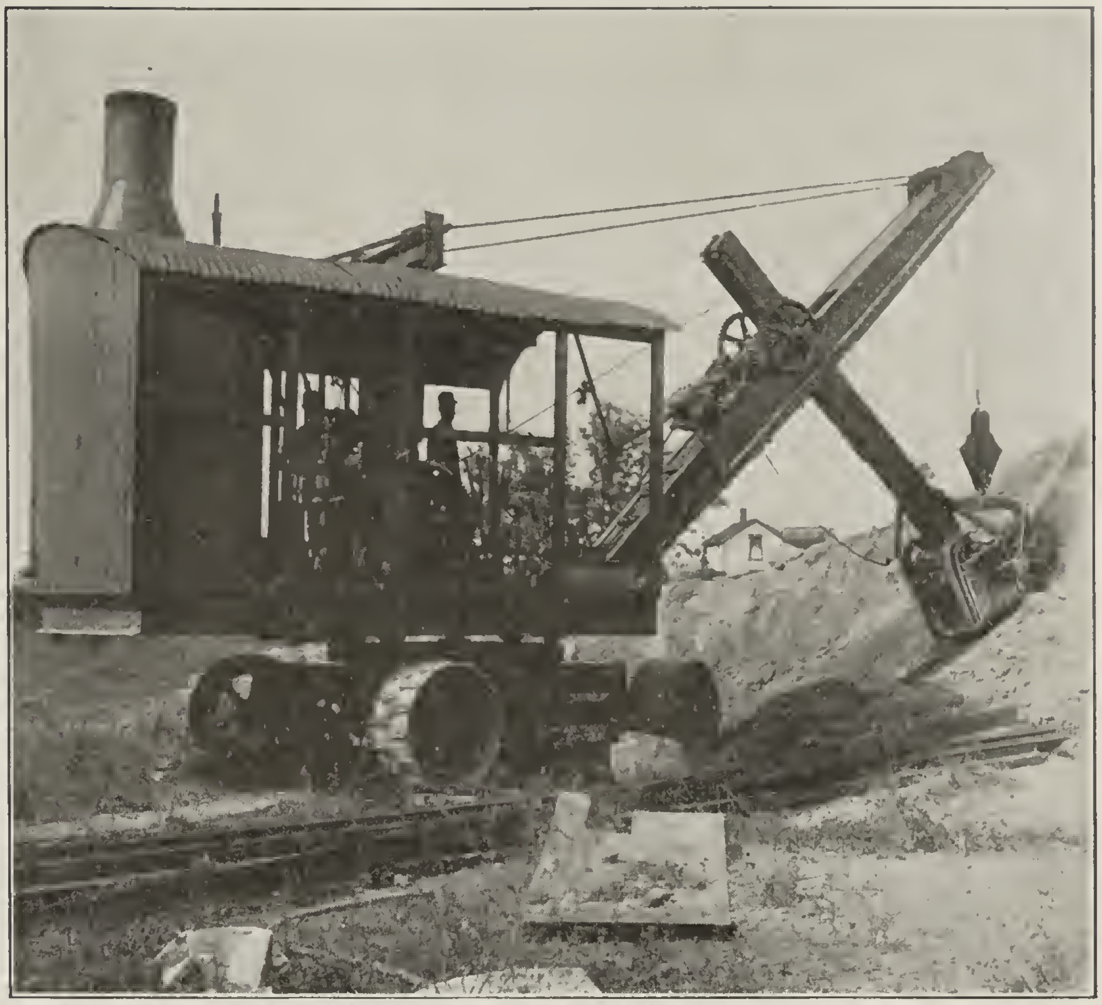
The Denbigh Brick Company, of Denbigh, a town near Minot, N. D., which recently went into the hands of a receiver, will be reorganized under a plan that has been proposed by several of the backers of the original enterprise. Under the reorganization plan, the plant will be enlarged and improved machinery installed, in order that a more perfect product may be produced.

The National Clay Products Company, of Langdon, D. C., is building four 35 ft. kilns and constructing 2,000 ft. of side track. Other improvements are contemplated, and the plant is being almost entirely rebuilt. John O. Olsen, who was superintendent of the Demarest fireproofing plant in New Jersey, has taken charge of the plant at Langdon. Samuel A. Ver-Valen, of the Keyser building, in Baltimore, Md., is president of the company.

(*Continued on Page* 100.)

Machinery and Equipment

A Department Devoted to New Devices and to Improvements on the Old with a Summary of Recent Installations



In announcing the purchase of the steam shovel patents and right of manufacture from the Browning Engineering Co., the American Clay Machinery Co. says in the current issue of "The American Clay Magazine": "It is no longer the large plants only which find it an advantage to dig their clay cheaply through the use of the steam shovel, and many plants which a few years ago were using other means, have come to the steam shovel. The cost of labor and the necessity for more rapid work has placed the shovel in operation and the efficiency and economy of shovels has kept them in operation after installation. On the front cover of this issue of "The American Clay Magazine" we show the steam shovel in operation at the Whitacre Fire Proofing Co. plant at Chicago Heights, a suburb of Chicago. The shovel is one of the best for the clay pit that has ever been placed upon the market, because of the fact that when it was designed the needs of the clay-workers were considered as of first importance. Mr. Browning, well known in the building of this class of machinery, was the designer of this shovel, and it is built by The American Clay Machinery Co., at its Willoughby plant. In design this American-Browning shovel is the product of years of experience in shovel and hoist building, and combined with this knowledge in designing and operating is the equally valuable experience of the American Company, as builders of machinery for manufacturing clay products. Every shovel is most carefully built, the material being most excellent and the machining of parts most faultlessly done. The complete shovel possesses a quality which will maintain it as a permanent success operated to its capacity or even beyond. Those clay-workers who desire a shovel at a reasonable price which will operate at a cheap cost of upkeep will do well to investigate this latest product of The American Clay Machinery Co. It is made in capacities and sizes suitable to the manufacturer of all classes of clay products, for the general contractor and for road building. Full description and photographs of these shovels will be sent upon request. If you have not considered the saving which can be effected through the use of a steam shovel we will be pleased to write you if you will tell us of your requirements. We have a number of these American-Browning steam shovels in use and will be pleased to refer you to satisfied users in various parts of the country."

Progressive and up-to-date clay manufacturers are anxious to secure efficiency in operating their plants and to reduce cost of operation to a minimum, so that the profits may increase and the expenses decrease. One of the greatest causes for loss in operation of a brick, tile or sewer pipe plant is in the kiln firing. If a certain concern has a loss in burning of 10 per cent, and by accurate control of the temperature this loss can be reduced to 2 per cent, the cost of the pyrometers on the kilns is very slight in comparison with the saving produced. Pyrometers installed on kilns means lower fuel consumption, because no higher temperature is maintained than is necessary to properly burn the clay. Better ware is produced of uniform color throughout, and a greater percentage of firsts secured, and the efficiency of the whole plant increased when a check on the firing is possible by the aid of a recording pyrometer. If a manufacturer had a record of the kiln temperatures every morning, showing the complete burn, he would not have to guess as to whether the kilns were properly fired during the night, and he would know what was taking place during his absence. The Brown Instrument Co., Philadelphia, Pa., has issued a 56-page catalogue, which contains letters from 100 users of Brown Pyrometers and will be sent on request. Further, upon advice as to the number of kilns, this concern will quote on a suitable equipment.

The Marion Steam Shovel Co., Marion, Ohio, has gotten out a novelty in the shape of a steel tape encased in a nickeled box with automatic spring rewind, which it is sending to its customers with the compliments of the season. Accompanying the little souvenir is a letter in which this apt phrase appears: "If it (the tape) will aid you in measuring the coming year's business, please put us next."

Catalogue 42, just issued by the C. O. Bartlett & Snow Co., Cleveland, Ohio, has reached us. This bulletin treats of special machinery for feeding, crushing and pulverizing different materials. The clay disintegrator, the Triumph Steel Disintegrator and the "Gardner Crusher, Disintegrator and Pulverizer" are special machines listed for handling difficult shales and clays. These machines are used also for limestone, coal and similar minerals and, therefore, are made for severe duty. The "Triumph Automatic Feeder," made in several sizes and designs, is a machine that meets with great favor among clay-workers. The Bartlett & Snow Co. also manufacture dryers for which a special catalogue, No. 16, is issued.

(Continued on Page 119.)

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Cement, Mortar, Brick, Stone, Concrete, etc.
25 Years Exposure Proves Their Permanence

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Two courses have been provided: The regular course of four years; a short course of two years designed for the young man who has had practical experience in clayworking.
C. W. PARMELEE, B. Sc. Director.
W. H. S. DEMAREST, D. D. President.

The United States Roofing & Tile Company has been incorporated at Parkersburg, W. Va., with a capital stock of $400,000.

The plant of the Harry Brick Company, of Dallas, Tex., including dwelling houses, machinery, buildings and appliances, has been sold to the Atlas Press Brick Company for $21,000. Thirty-two acres of land were included in the transaction.

A suit against the New York Central Railroad has been filed by the Centre Brick & Clay Company, of Orviston, Pa., claiming a refund of 10 cents per net ton on brick shimpents from its plant to Lock Haven, Pa.

The contract for the construction of the plant of the Columbia Tile Company at Grafton, W. Va., has been awarded to the Moss Iron Works of Wheeling. It is expected that the buildings will be completed about April 1, 1914.

The Kamsack Brick & Tile Company has been incorporated at Kamsack, Sask., with authorized capital of $20,000. The incorporators are: J. D. Wallace; W. E. Ouliette; J. Johnston, and H. Harvey.

The suit of the Perkiomen Brick Company against the Montello Brick Works was tried in record time at Reading, Pa., Nov. 21. Eight minutes was consumed in the hearing, and the presiding justice directed the jury to return a verdict in favor of the plaintiff for $22,600.

The Labor Committee is composed of W. E. Wells, chairman; H. N. Harker, F. G. Meller, of Trenton, N. J.; John N. Taylor, Thomas A. McNichol, Frank A. Sebring, of Sebring, Ohio; Moses Collear, of Trenton, N. J.; George C. Thompson and T. B. Anderson, of East Liverpool, Ohio.

The Brazil Clay Company, Covington, Ind., is closed down temporarily. The company has exhausted its clay deposit and is preparing to run a track into new fields. The land owners are asking too much for right of way over their land, according to the company.

The Tar River Brick Company, at Rocky Mount, N. C., has been incorporated, with an authorized capital of $50,000—$16,000 subscribed—the directors being W. R. Coleman, S. S. Toler, R. S. Gorham, W. C. Woodard, Jr., D. J. Rose, George S. Edwards, A. B. Davis, Jr., J. M. Daughtry and W. S. Wilkinson, all of Rocky Mount.

A Fort Dodge, Iowa, report states that an eastern clay products concern may locate at Lehigh and that Minnie M. Wilson and husband and J. L. Prince, of Waterloo, have been buying surface rights of a large area at Lehigh—about 1,500 acres—at $13,000 from Samuel McClure. About 100 tons of clay have been sent east.

It is reasonable to presume, according to W. E. Wells, secretary of the Homer Laughlin China Company, and chairman of the Labor Committee of the association, that clear skies have appeared, and that the situation in the domestic pottery business, so far as labor is concerned, is all that could be asked at the present time.

The Cleveland Vitrified Brick Company has moved its offices from Oklahoma City, Okla., to Cleveland, Okla., where the plant is located. This concern manufactures gas-burned face brick, common brick and paving block. Charles A. Hoshour is the president and manager, I. E. Hunter, vice-president, David R. Hochour, secretary and E. B. Wentworth, treasurer.

Charles Wiegel, one of the owners of the Hebron Brick Company, Hebron, N. D., states that the plant manufactured six million brick this year and expects that the capacity will be doubled for 1914. Arrangements are being made to install briquetting machinery and the company will use gas for the burning of brick and briquettes will be a by-product.

There is a possibility that the city of St. Paul may engage in the making of brick. Officials have been investigating the Minneapolis workhouse brick making plant, with a view to establishing a plant to be run with workhouse labor. The Minneapolis municipal plant has been a success, and the city officials of St. Paul have been much interested in it.

S. B. Dobbs, of Philadelphia, has given up his Baltimore office, it being his intention to handle the Baltimore trade from his office in Washington, D. C. Conger Edgett, who was formerly in charge of the Baltimore office, is back in Philadelphia, from which city he travels northern New Jersey and southern New York.

W. W. Jackson, who is in charge of S. B. Dobbs' office in Washington, D. C., reports conditions as being quiet, but continues to book a very nice volume of business. He has been handicapped by the difficulty in securing prompt shipments all through the year, and expects that most of the plants he represents will increase their capacities this Winter.

Manager W. L. Bever's report at the annual meeting of the Zumbrota (Minn.) Clay Company showed a profitable year. Output for seven months, 63 kilns or over 6,000,000 brick; pay roll, $24,000; breakage and shortage in shipment of all ware, only $10.32; directors elected for the year: E. G. Hammer, A. J. Rockne, Wm. Croxford, John Startz, Anton Johnson, Paul Kalas, L. E. Sigmond.

The Yankton (S. D.) Brick Company has been incorporated and temporary officers were elected as follows: President, Wm. Fantle; vice-president, D. B. Gurney; treasurer, J. A. Danforth, and secretary, J. M. Lloyd. The company has purchased machinery and material for building and this freight is expected to arrive in about ten days. The plant will be in full operation, making 20,000 brick per day, by March 1st.

Charles Childs, of 307 Evans building, is the Washington manager for the United Brick & Clay Products Company, of Philadelphia. He is selling the product of the Centre Brick & Clay Company, of Orviston, Pa., making rough texture face-brick; and of the Mill Hall (Pa.) Brick Company, making smooth red brick. Of the latter, it is furnishing 1,500,000 for the Bureau of Engraving and Printing.

The Basin Brick and Tile Company, began business at Basin, Wyo., on Dec. 1. Authorized capital stock, $150,000. President D. L. Garr is president of the new concern.

Shortage of gas has had a serious effect upon the brickmakers of Fort Smith, Ark. Present indications do not offer very much promise of a brighter future.

The election of officers for the United States Potters' Association for 1914 resulted as follows: W. S. George, of East Palestine, Ohio, president; William Burgess, of Trenton, N. J., first vice-president; Charles F. Gosser, of Coshocton, Ohio, second vice-president; T. A. McNichol, of East Liverpool, Ohio, third vice-president, and Charles F. Goodwin, of East Liverpool, Ohio, secretary-treasurer.

The Executive Committee that was chosen for the year is as follows: Col. John N. Taylor, of East Liverpool, Ohio, chairman; Charles Howell Cook and A. G. Dale, of Trenton, N. J.; Charles F. Gosser, of Coshocton, Ohio, and the following, all of East Liverpool, Ohio: W. L. Smith, W. E. Wells, Charles A. Ashbaugh, George C. Thompson, H. N. Harker and Edwin M. Knowles.

The Washington Silicate Brick Company, of Washington, D. C., is running its plant to full capacity, making 45,000 a day of sand-lime face and common brick. It is also interested in a plant near Philadelphia and say the sand lime brick is growing in popularity throughout the Eastern states. The capacity of the plant here at Terra Cotta, D. C., has been doubled and a fire protection system has been installed.

The Maryland Terra Cotta Company, of Baltimore, ships the bulk of its product South and has had a good year. The demand for ornamental terra cotta is on the increase. It is durable, lighter than granite, marble or limestone, will withstand the elements, is easily handled, is attractive in appearance, can be made of any color, and is fireproof. It also costs less.

The consolidation of M. A. Reeb and of the Buffalo Builders Supply Company, under the name of the Buffalo Builders Supply Company, Inc., is announced. The officers of the new company are S. M. Hamilton, president; Daniel W. Streeter and Charles L. Hayes, vice-presidents; Bryant H. Prentice, treasurer, and R. J. Randall, secretary. The clay products department will remain in charge of Edwin F. Knight, formerly of Bradford.

It has been urged upon the association that there be formed an organization of superintendents, heads of departments, and shop foremen for the purpose of mutual benefit, not only to themselves, but to the general benefit and welfare of the trade. It has been pointed out that a greater amount of efficiency could be created should there be a general intercourse of thoughts, ideas and experiences which come up in the everyday routine work of the potteries, and that many of the numerous difficulties now bobbing up daily could be overcome.

Alfred Tyler, formerly manager of the Hydraulic office in Baltimore, Md., has opened a brick selling office in the Munsey building, in that city. He has secured a large and varied line, including that of Fiske & Company, Inc., Columbus Brick & Terra Cotta Company, Fallston Fire Clay Company, Gloninger & Company, American Enameled Brick & Tile Company, Kittanning Clay Products Company (Foster line), and the Auburn Shale Brick Company, of Gettysburg, Pa. In addition to this, Mr. Tyler handles the Federal terra cotta for Baltimore and suburbs.

The Potomac Brick Company, of Washington, D. C., have a plant at Addison, Va., with a daily capacity of 60,000, and besides the common are making an imitation Harvard, hand finished red front brick. Prices have been low and business quiet. This year the plant has been shut down several times as the demand was slow. It will shut down again at Christmas for repairs. They furnish considerable brick for Government work, it being used to back up the stone. Have ten acres of clay which is mined by steam shovel. Elliott S. Morse is the general manager and looks after the selling end.

T. F. da Rosa, 57, rua Fortunato, S. Paulo, Brazil, a large manufacturer of hollow block, common brick, drain tile, sewer pipe and pottery, who was mentioned in this bulletin recently as being in the market for machinery, says he has written to advertisers in "Brick and Clay Record" for machinery catalogues and is contemplating buying machinery for a second plant which he has in mind to establish. He plans an early visit to the United States to inspect plants and we suggest that our advertisers get in touch with him at once. His letter in full is printed in the Dec. 18 issue of this journal.

The P. Bannon Pipe Company of Louisville, Ky., which will manufacture sewer-pipe, tile, brick and other articles of clay, filed articles of incorporation, with a capital stock fixed at $200,000. The new company is a merger of the Kentucky Vitrified Brick Company and the P. Bannon Sewer Pipe Company, which have been closely associated for some time. The incorporators are W. W. Downing, William Rosenfield and Lawrence Veenman. The attorney for the company, Judge O'Doherty, stated that M. J. Bannon will be president and Patrick Bannon, Jr., secretary and treasurer.

Forty-seven kilns were added to the production of domestic ware in the United States during the last year, and this has established a new record for increased capacity in this industry within a given limit of twelve months. This fact was brought out at the annual meeting of the United States Potters' Association, which convened at the Fort Pitt Hotel, Pittsburgh, Pa., December 2-3. The calendar year, however, according to members of the Labor Committee, has been a most strenuous one so far as that part of the industry is concerned. Starting early in the year when the warehouse and dipping house girls went on strike, the labor troubles of the year were not brought to an end until just a few weeks ago, when an instrument, known as the "Astor Agreement," was signed by representatives of the United States Potters' Association, and those representing the National Brotherhood of Operative Potters.

"Clinton" Brick and Mortar Colors

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Insist on seeing this label

Full particulars and prices gladly furnished.

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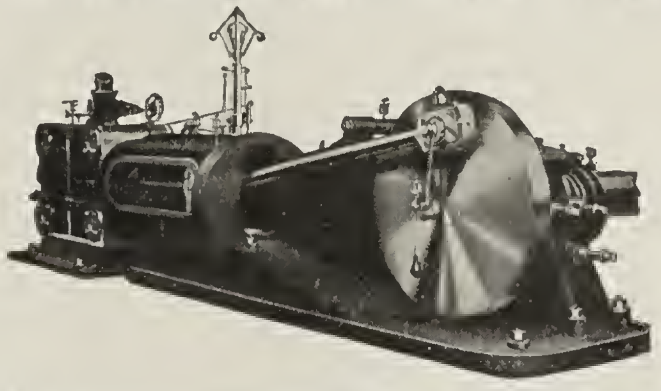
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



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THE BUCKEYE ROLLING MILL COMPANY

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With our new system, including our Automatic Dumping Machine, we are able to, and will guarantee to make 50,000 brick a day in one unit.

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Geological Examination of Properties
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Plants Designed, Construction Superintended and Operations Directed
Driers, Furnaces, Kilns
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THOUSANDS in USE
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OIL BURNERS FOR BRICK KILNS
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SCHURS OIL BURNER CO.
LOS ANGELES, CAL., U. S. A.

We Reline Press Boxes

We reline any make and for any shape brick. No job is too exacting for us—none too small or too large

We make Kiln Bands, Kiln Band Lugs, and Grey Iron Castings for Grinding Pans. Special Foundry Orders are a Specialty. Submit sketch or specifications.

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We solicit inquiries from discriminating buyers.
What are your requirements?

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The Clio Brick Company, of Clio, Mich., reports manufacturing 4,500,000 clay brick during the past season. The concern reports an excellent business from all parts of the state.

The Grand Ledge Clay Products Co., of Grand Ledge, Mich., is preparing to spend $15,000 in making improvements to its plant. The company has started work in constructing three kilns and a big stack has been put in place.

The Sioux City, Iowa, Brick and Tile Co. has the order for brick to build the Great Northern railroad depot at Butte, Montana. Twenty car loads of brick will be required and the haul will be 1,300 miles.—American Clay Magazine.

M. H. Riddlell, manager of the Paducah Pottery Company, of Paducah, Ky., has resigned. Mr. Riddle has been head of the big plant in that city for two years. It is believed that he will engaged in other business in Chicago.

The Woodland Clay Co., of Watseka, Ill., has disposed of its entire tile output up to June 1, 1915, to A. S. Rosing, of Chicago, who operates an extensive clay products selling agency. The sale was made through the company's president and general manager, John W. Anderson.—The Claycrafter.

The Kansas Buff Brick & Mfg. Co., of Buffville, Kans., with sales offices at 219 Reliance Building, Kansas City, Mo., has issued a very neat folder describing two of their face brick products—"Navajo Rough Texture" and "Smooth Texture" brick. The folder is not only attractively printed, but also contains a wealth of information about these products.

A merger of the interests of the P. Bannon Sewer Pipe Company, and the Kentucky Vitrified Brick Company has been effected at Louisville, Ky. Articles of incorporation of the P. Bannon Pipe Company were filed. The new company takes over the business of the two old concerns, with capital stock of $200,000.

That fire prevention depends, in great extent, on the use of proper building materials was pointed out to Grand Rapids, Mich., business men at a recent meeting and the suggestion was made by different speakers that merchants in constructing additions or building new stores should use brick as a fireproofing material.

Business men of Mt. Clemens, Mich., have succeeded in their efforts to have a pottery concern locate in the city. It has been announced that $100,000 has been subscribed and a number of citizens have expressed a willingness to invest more money. When the plant is in operation it is expected that 225 persons will be given employment.

The Michigan Bricklayers' Association held its sixth annual convention in Saginaw, Mich., during the past month and after electing officers selected Jackson as the next meeting place. Officers were elected as follows: President: R. Irwin, Grand Rapids; first vice-president, Robert G. Ewald, Detroit; second vice-president, Otto Young, Saginaw; third vice-president, Beers W. Henry, Battle Creek; fourth vice-president, Louis Lucas, Ann Arbor; secretary-treasurer, William Kean, Kalamazoo.

The paving brick industry of Cleveland, O., is of such magnitude that it has attracted much attention all over the country. The annual production is about 50,000,000 pavers, which are equal to fifty miles of city streets thirty feet wide, or to 100 miles of country roads, such as have made Cuyahoga county famous the world over. The capital invested in the industry totals more than $1,000,000. About 800 men are given steady employment during the entire twelve months of the year.

The plant of the Deckman-Duty Brick Company is located at Collinwood, O. This firm manufactures "Medal Block," and is one of the leaders of this industry in that city. The plant of the company, with twenty acres of shale and a thirty-foot round down-draft Kitus, produces 12,000,000 pavers annually. This product is being used largely in the improvements of the city and country roads, in addiitonal to being shipped to trade in New York state, Michigan, Indiana, Ohio, and Canada.

According to provisions contained in the "Astor Agreement," four additional committees are necessary on the part of the association to carry out some of the clauses of that instrument. There are two committees each for the "Eastern" or Trenton, N. J., district and "Western" or East Liverpool, Ohio, district, which are known as the "Eastern" and "Western" Help Committees and "Eastern" and "Western" Discharge Committees. It is the purpose of both employer and employe to put a stop for once and all to the competitive bidding for help, and the paying of a bonus to young help to get them to leave their present employers. This is admitted to have been a curse within the trade, and was brought about by the jiggermen and other workers who employ help, to "get" the helper of his fellow worker. Such a condition has created an independence among the help that has reacted upon the manufacturer in keeping down production.

The Hydraulic-Press Brick Company of Baltimore reports that some kinds of face-brick, notably flashed and iron-spot, have advanced slightly in price, the demand for this class of brick having been steady and the supply limited. Baltimore is in the process of emerging from being a red brick city into a host of colors other than red, and, following the rule, goes to light shades via the iron-spot route. The rough-textured brick is not taking hold as rapidly as in many of the other coast cities, but its popularity is increasing gradually, and the prospects are that it will become more and more sought after, as the buildings now being erected, have had time to demonstrate the claim made by "texture" advocates—that it grows old gracefully. At the Hydraulic plant in Fort Runyon, a departure has been made, part of the capacity being turned to the manufacture of salt glazed brick. A large quantity of this material has been supplied to the Cambridge (Md.) Hospital. T. B. Amiss has been in charge of the Baltimore office of the Hydraulic-Press Brick Company for more than a year and has made a good record.

At Madison, Wis., a new building code will be submitted to the council at the first meeting in January.

It is reported that the Denbigh Brick Company of Minot, N. Dak., will soon resume business.

W. E. Dunwoody of the Standard Brick Co., Macon, Ga., sent handsomely engraved Christmas cards to his trade.

The town of Shellsburg, Iowa, has made a progressive move in enacting a city ordinance restricting buildings to fireproof only in the business district.

F. M. McDonald secured the contract for furnishing the Pantlind Hotel Company, of Grand Rapids, with face brick. The order calls for 350,000 brick.

I. G. Poston, president of the Martinsville Brick Company, Martinsville, bought the first Red Cross 1913 Christmas stamp sold in that city, paying $25 for it.

Mortimer Miller, of Indianapolis, new owner of the American Brick & Tile Company, of Morenci, Mich., reports an excellent business. Grover C. Miller, a son, has charge of the Morenci plant.

The Hebron Brick Company, Hebron, N. Dak., has arranged to erect a modern hotel for single men in its employ. The structure will be of brick, modern, and have accommodations for one hundred men.

The Gluek Brewing Company will at once erect a three-story, brick, steel and tile store and rooming house at 24 Hennipen avenue, opposite the new Gateway park. The permit was taken out this week, placing the cost at $24,000.

The Empire Brick Co., of Salt Lake City, Utah, won first prize for the best display of pressed brick at the Utah state fair. The company's display consisted of fifteen varieties of its products and attracted considerable attention from contractors and builders.—The Claycrafter.

Horace Lowry, vice-president of the Twin City Rapid Transit Company, has just taken out a permit for a three-story brick and tile residence and garage to cost $75,000. The garage and residence will be connected with a covered pathway of the same material.

The United States Encaustic Tile Company, of Indianapolis, founded in 1876, is said to be one of the oldest concerns of its kind in the United States. The company exports its product to all parts of the world and the plant occupies an entire city block.

At a cost of $125,000 the Climax Fire Brick Co., of New Bethlehem, Pa., contemplates the erection of a new plant. The site is now being cleared, but actual construction is not expected to start until after the end of the winter season. The main plant will occupy a site 80 by 300 feet, while the engine and boiler house will be 30 by 50 feet.

F. Schmidt, of Detroit, one of the largest stockholders in the plant of the Detroit Vitrified Brick Company, has said that the concern would resume operations shortly after the beginning of the new year. The plant employs 40 or 50 men and has turned out an immense quantity of brick which has heretofore found a ready sale. The best quality is used for paving and the culls for building material.

After an idleness extending over several months, the Lisbon, O., plant of the American Sewer Pipe Co. is to be placed in immediate operation. The plant is under the direct management of J. I. Crawford, who is also manager of the East End plant of this company located at East Liverpool, O., in the same county. All surplus stock in the Lisbon yards has been shipped. Nearly 100 men will be given employment.

The Warren B. Ferris Brick Co. sent a very clever holiday souvenir in a box of special candy. Each piece of candy carried the Ferris brick trade mark and the box cover had a similar design worked out neatly. Accompanying the souvenir was a card which read: "Greetings! Trade mark, 'Ferris Brick,' has been made prominent in a multitude of different ways, now 'Durn you, eat it!' "

The Federal Clay Products Co., whose plant at Mineral City, O., was recently destroyed by fire, will be rebuilt at once and in connection with this improvement, the company will erect a central station power plant which will furnish power for heat, light and power for the operation of the other properties of the corporation in that vicinity. In all, four factories will then be operated by electric power instead of by steam power as is now the case.

After a long campaign, extending throughout the year, the city of Muscatine, Iowa, is to have a new municipal structure for a city hall. The architect is J. E. Mills, who will be assisted by Architect Henry W. Zeidler, of Muscatine. The new building will be entirely fireproof throughout, costing $75,000. It will be three stories and basement. The exterior walls will be of face brick, stone trimming. The interior walls to be of solid brick and the remainder will be hollow tile.

George W. Lilly, president of the National Tile Company, Anderson, Ind., died in a sanatorium in Dansville, N. Y., Dec. 5, after an illness of several months' duration. He was 51 years old and is survived by a widow and one daughter. In 1888 Mr. Lilly and B. O. Haugh established the Columbia Encaustic Tile Works at Anderson, Ind., which later was reorganized under the name of the National Tile Company, which is capitalized at $500,000. The body was taken to Anderson for burial.

"Joe" Nicholson, of the Toronto Fire Clay Co., of Toronto, O., when in Pittsburgh, Pa., a few days ago declared that from present indications 1914 would prove to be a good business year, and that any amount of small buildings would be built of brick. "This will make the face brick business good, and you can bet that we are going after some of it." The Toronto plant of this company has a capacity of from ten to twelve million brick a year, and "we want to run every working day in the year", said Mr. Nicholson.

The advantage and necessity of A pyrometer in brick manufacturing DOES NOT have to be proven. It is established.

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The unequalled serviceability of the CALDWELL CYPRESS TANK is because of its unequalled quality of materials and construction. We use only the "everlasting" cypress from the Louisiana swamps, that outwears and outlasts every other kind of tank wood, being practically as durable as steel. These tanks are hooped with such care and precision as to be absolutely tight, not for a season but for an indefinite number of years. Caldwell construction makes leaking impossible, and repairs unnecessary. Investigate the Caldwell tank and you will take no other. Ask for illustrated catalogue.

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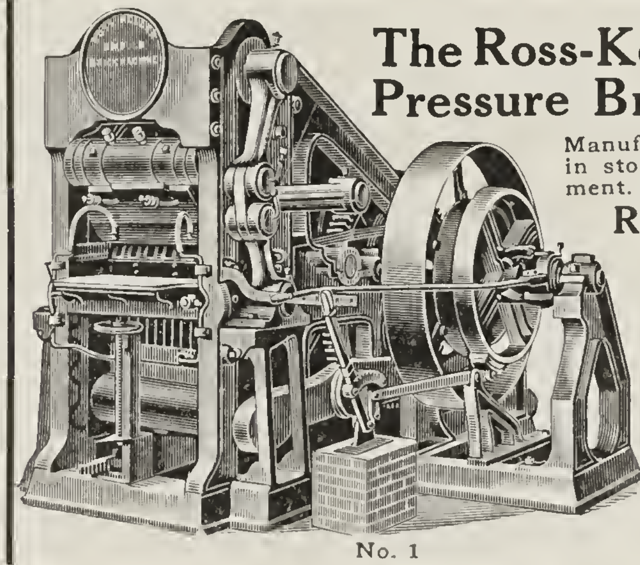

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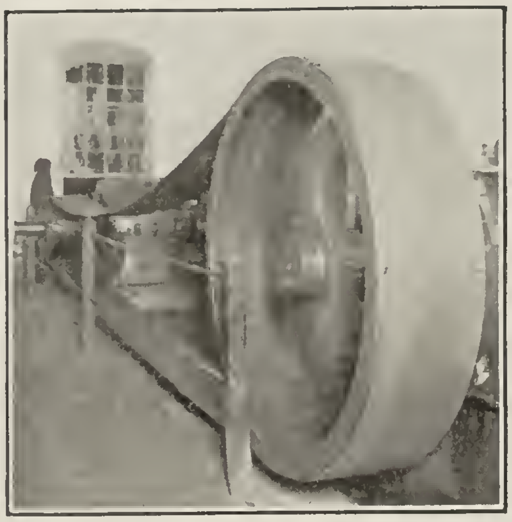

The belt in this photograph is 3-ply; it is transmitting 220 horse power; is under a tension of over 1445 pounds on the pulling side; and yet THE TOP SIDE RUNS SLACK.

When this belt was photographed (in the plant of the Wilkes-Barre Light Co., Wilkes-Barre, Pa.) it was pulling 220 horsepower. Looks as though it were pulling nothing, doesn't it? Treated with Cling-Surface a belt can't slip, especially if it is provided with a fairly liberal arc of pulley contact as above.

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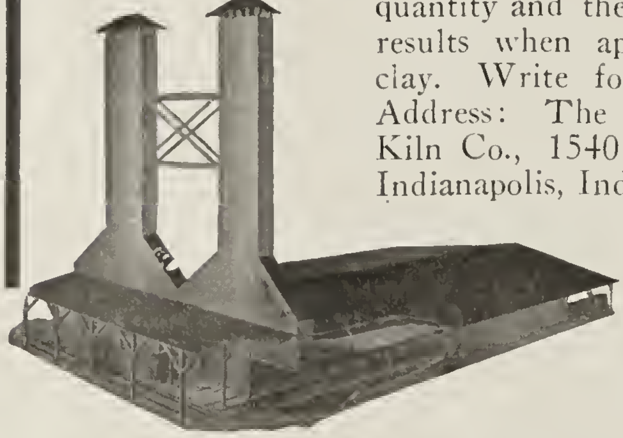
1914

LET The Standard Drier help to make it your *biggest* business year—your *most profitable* business year! Better drying of your product will have a large bearing upon the year's prosperity—and better drying is what The Standard Natural Draft System will give you.

We will *guarantee* both the quantity and the quality of its results when applied to *your* clay. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



The Globe Brick plant of Nelsonville, Ohio, has been destroyed by fire entailing a loss of $10,000.

The Shorey-Willis Brick & Supply Co. of Cincinnati, Ohio, sent out a neatly printed card bearing holiday greetings.

The Ohio Clay Co., of Cleveland, Ohio, issued a Christmas-New Year card.

S. H. Shoctel, chemist at the plant of the New Lexington Tile Co., Zanesville, Ohio, was shot by a woman at the New Lexington Hotel a few days ago.

The Alger Clay Manufacturing Company of Alger, Ohio, is busy finishing the building of an immense new coal shed along the Erie tracks.

Dr. C. L. Casey, manager of the Guernsey Earthenware Company of Cambridge, Ohio, announced the company's intention of erecting an addition to their local plant which will mean the employment of 200 more people at the plant. Work is to start at once.

Frank Bowers, who until a few months ago, operated a clay kiln with his brother Dan Bowers on East Chestnut Street, Columbus, O., has returned to Coshocton, Ohio, and announced that he would re-open the kiln. Filter jars and "biscuits" for gas stoves will be manufactured by Mr. Bowers.

The advisability of establishing a subsidiary penitentiary in a part of Ohio where the natural resources of the soil offer special advantages for the manufacture of such clay products as brick, pipe, etc., was considered by the penitentiary commission which met with Governor Cox at the executive office in Columbus, O., recently.

The Finzer Bros. Clay Company, operators of a brick and tile factory at Sugarcreek, Ohio, have patented a new block silo which they call the "Never Bust Silo". The new silo it is claimed can be constructed far cheaper and is more substantial than any other block silo. The company has already sold 20 of these silos this fall and a die has been ordered so that the blocks will be made by machinery in the near future.

Sub bids are now being taken for the construction of the new plant of the Thornton Fire Brick Co., at Grafton, W. Va. The original plant of this concern was destroyed by fire several months ago. Excavation for the five new buildings that are to be erected has started. Each building will occupy a site 50 by 200 feet and will be built of brick and steel. It is likely that this rebuilt plant will be ready for operation early in the spring, providing the weather is such as to permit permanent work upon construction.

The Federal Clay Products Company of Canton, Ohio, will expend between $60,000 and $100,000 for the construction of their new building to supplant the one destroyed by fire some time ago and for the centralization of the power system. Experts are now making estimates on the cost of the work. The company has four plants in operation, and under the present system power for each is furnished separately. This system will be abandoned and a new 1,000 horsepower plant will be erected to supply the required power for the four buildings.

A loss of probably $10,000 was sustained when fire damaged the plant of the Globe Brick Works, just east from New Cumberland, W. Va., Christmas morning. The plant is owned by Capt. John N. Porter and his two sons, J. N. and Fred G. Porter, and a daughter, Mrs. Frederick B. Lawrence of Newell, W. Va. The origin of the fire is not known. It was discovered in the drying room by night watchman Joseph Fryman. As the Porters reside at Kenilworth, W. Va., opposite from Wellsville, O., they had to await a morning train before they could go to the plant. At this writing, it has not been decided whether or not the plant will be rebuilt.

The Indianapolis city council has recently adopted one of the most up-to-date building codes in the United States and it will be effective shortly after the first of the year. It provides that all buildings in the down town district, all buildings more than ninety feet high and all schools, hospitals and apartment houses three stories or more in heighth must be of fireproof construction. The heighth of buildings is limited to two hundred feet. On account of the numerous casualties from concrete construction, the code deals rigidly with concrete work. The building department is given absolute authority to prohibit concrete construction during freezing weather.

Arthur N. Johnson, M. Am. Soc. C. E., State Highway Engineer of Illinois, Springfield, on Dec. 13, delivered an illustrated lecture on "Economics of Highway Engineering in the Middle West," before the Graduate Students in Highway Engineering at Columbia University, New York City. Samuel Hill, president of the American Road Builders' Association, Seattle, on Dec. 15 delivered an illustrated lecture on "Highways of the Northwest." Walter H. Fulweiler, Assoc. M. Am. Soc. C. E., chief chemist, United Gas Improvement Company, Philadelphia, on Dec. 23 delivered an illustrated lecture on "The Manufacture of Refined Water Gas Tar." Philip P. Sharples, chief chemist, Barrett Manufacturing Company, Boston, on Dec. 27 delivered an illustrated lecture on "The Manufacture of Refined Coal Tar."

Prizes for Men in the Plant—

See Page 91 for special prizes for ideas. "Brick and Clay Record" will pay $1 an idea and $5 for the best published in each issue.

Bureau of Standards Most Active in Testing and Research Work in 1913.

The Bureau of Standards, a department of the United States Geological Survey, located at Pittsburgh, Pa., was a very active branch of the Government during 1913 and much was accomplished in the testing and research work whose purpose is to standardize building and construction materials.

Prof. A. V. Bleininger, one of the world's recognized authorities in matters ceramic, has charge of that part of the work in which clayworkers are interested and with his staff of assistants, has done much of value to the industry.

The Bureau aims to conduct special research work and tests to all industrial material that a definite knowledge of the properties which fit a material for its use and the conditions under which those properties may be unfailingly reproduced in order that producer and consumer alike will be assured of high quality and steady improvement in each material and manufactured product.

Among the researches on materials a few illustrations will show the nature of these problems. An investigation of the manufacture of true porcelain from American materials is well under way, with a view to encouraging in this country the manufacture of this and other pottery products now exclusively imported. Numerous studies in various phases of the ceramics industries have been published by the Bureau which are of direct application to these industries.

Great progress has been made toward making the work of the Bureau of Standards available and useful to the public, by the publication of scientific and technical papers, circulars of information, conferences on specific subjects, and through the technical press. Nevertheless, every effort will be made during the coming year to make it a more effective factor in solving the great problem of efficiency—the basis of all progress in science and industry.

Western Paving Association Meets Jan. 17.

The Western Paving Brick Manufacturers' Association meets in annual session Jan. 17 at its headquarters, suite 416 Dwight Building, Kansas City, Mo. These meetings are not in the strictest sense, conventions, the members meeting merely to hear reports of their various officers and to formulate plans. Editor Wells, of "Brick and Clay Record" has been invited to address the body at the meeting on the subject of association work.

American Good Roads Convention.

The fourth American Good Roads Congress, held in Philadelphia, Pa., Dec. 9 to 12 inclusive, drew a host of good roads boosters, and a goodly sprinkling of men who make good roads possible—the men who make the materials and the men who build roads with them. C. J. Deckman, president of the National Paving Brick Manufacturers Association, together with H. H. MacDonald, the assistant secretary, were in attendance, taking charge of the N. P. B. M. A. exhibit, which consisted of samples of paving brick manufactured by various members of the association, as well as a sample of the vitrified brick pavement that has been in place in Sandusky, Ohio, for more than 19 years. Brick literature was distributed liberally and it is expected that this convention will be another milestone in the progress of the "dustless pavement."

Brazil, Ind., Prosperous.

Brazil's ten clay plants have had a prosperous year. However, the general output fell below that of a previous year, but in comparison with business in other parts of the United States there is no cause for complaint here. The Clay Products Company completed its new plant during the year and it is now one of the most up-to-date in the United States, the machinery being electrically driven. There are two projects under way for new plants here. Before the coming year has passed Brazil doubtlessly will have a terra cotta industry.

The American Institute of Architects.

The forty-seventh annual convention of the American Institute of Architects met Dec. 2, in New Orleans, La., the first Southern city to be so honored by the organization. One hundred and thirty delegates attended the opening meeting.

The Hutchinson (Minn.) Brick & Tile Works has received orders for an unusually large supply of drain tile, to be ready for shipment in the Spring. In one ten day period, orders came in for eleven carloads.

The Fisher & Gamble tile plant at Gilboa, Ohio, has started up again, after a shut down for repairs.

William Fricke, pioneer brick manufacturer, of Manitowoc, Minn., died Dec. 15. He was 69 years old, and had been in the brick business for half a century.

Work has been resumed at the Richmond, Cal., brick yard,

CLAY HAULAGE
Reduce costs of transportation by using a
Davenport Industrial Locomotive

Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Cheaper Than Horse Transportation

and will reduce costs of delivering your material to your plant, thus increasing profits.

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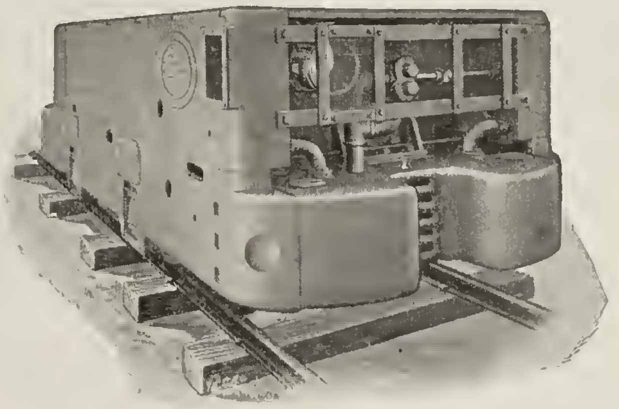

Over 300 in Use—

Used by 150 Companies.
Used for Underground
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Surface Haulage—
2½ to 16 Tons Weight.

Geo. D. Whitcomb Co.
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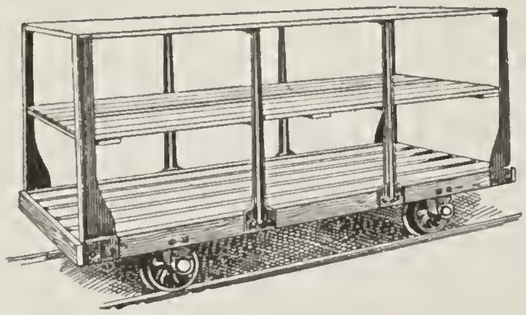
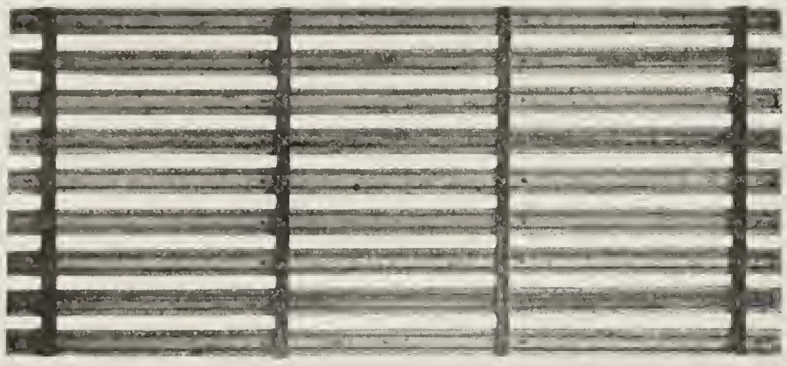
Manufacturers of the famous

Vulcan Dryer Cars

Over 4000 in use in Mason City



Write for particulars about them and the Vulcan Improved Combination Wood and Steel Decks.



Also grey iron castings for all kinds of brick and tile machinery.

VULCAN IRON WORKS COMPANY
MASON CITY, IOWA

WATCH THE BUCYRUS DIG!

BUCYRUS STEAM SHOVELS

are mining clay in all parts of the United States. They save the troubles occasioned by a large labor force, increase output, and improve the quality of brick, over hand-worked plants. Even if your capacity is far below the capacity of the shovel, it will pay to investigate the saving made by steam shovel operation.

Write for full information.

BUCYRUS COMPANY
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which is located on the waterfront, near the Western portal of the Santa Fe tunnel. At present there are about 40 men on the payroll.

The Illinois Brick Company of Chicago declared a semi-annual dividend of 3 per cent at its December meeting. The books closed Jan. 3rd. In January a year ago, the dividend was 2 per cent, and in July, 1913, it paid 2½ per cent, making a total of 4½ per cent for the year 1913.

The Excelsior Brick Company of Rockwood, Pa., closed its plant for the Winter on Dec. 6.

National Building Trades and Employers' Association.

The annual convention of the National Building Trades and Employers' Association will be held in Louisville, Ky., Jan. 20-23, inclusive, with headquarters at the Seelbach Hotel. A large attendance is expected which will represent all the important concerns engaging in the building trades and contractors of all trades throughout the entire United States.

In connection with the convention, there will be a display of building and construction materials and appliance, on the same floor adjacent to Convention Hall, through which all delegates and visitors must pass. Display space is limited and those desiring same should at once notify Thomas L. Barrett, Chairman of the Exhibit Committee, 400 Realty Building, Louisville, Ky., of the amount of space desired. Prices range from $1 to $2 per square foot, according to location and as much or as little space can be arranged for. A committee has been appointed to install, at actual cost, all material sent for display. Without charge, the exhibit will be attended, kept in order, explained, and literature distributed, in event you have no local representative.

American Highway Association.

A definite effort is being made by the American Highway Association, acting in conjunction with the American Bar Association, to codify the various state laws on road building and improvement, to the end that a uniform law may be adopted. It is pointed out that many of the road laws now in existence are more than 100 years old and are based on Colonial legislation, which, in turn, had been based on English precedent.

There is so little uniformity and so much that conflicts in state laws that it is felt as an obstacle in the way of those who are seeking to give the entire nation a network of improved highways. A conference was held at the Vanderbilt Hotel, in New York, Dec. 12, the results of which have not, as yet, been announced.

The National Drain Tile Co., of Terre Haute, Ind., have purchased one of the large No. 10 drain tile machines made by H. Brewer & Co. and will install it in the Streator, Ill., plant. This machine has a capacity of 200 tons per day.

The Haviland Clay Works, Haviland, Ohio, recently bought by L. P. Roberts from Berton Rust, has been newly equipped by the purchase of the following machinery from H. Brewer & Co. One No. 88 tile machine, a pugmill, crusher, clay feeder and automatic tile cutter for capacity of 30,000 four-inch tile.

W. J. Carmichael of the sale organization of The American Clay Machinery Co., has been elected Mayor of Willoughby. The hustling propensities of Mr. Carmichael will make it possible for him to fill these new responsibilities without interfering with his position with the American Co. His friends will extend congratulations—to Willoughby.—American Clay Magazine.

Catalogue 106-A14, issued by the Dodge Mfg. Co., Mishawaka, Ind., has been received. It deals with power transmission machinery and is of particular interest to the clayworker. It supplies, in a condensed form, information and price lists of standard appliances embraced in the Dodge line. The tables in the condensed catalogue are of great value to any one using power transmission.

J. C. Steele & Sons, Statesville, N. C., manufacturers of brick making machinery and brick yard supplies, are distributing a new issue of catalogue. No. 25. It gives a clear idea of the brickyard equipment made by this concern and shows markedly the advance and progress in machinery of recent years. H. O. Steele, in writing this office, says: "We have had an excellent year during 1913, and probably have more orders on hand at this time for equipment than we have ever had before, and the indications for the new year are excellent."

Two little magazines issued by two of the largest clay machines manufacturers in the country—"The American Clay Magazine," published by the American Clay Machinery Co., and "The Claycrafter," published by the C. W. Raymond Co., are true boosters of clay products and are not only a credit to the concerns issuing them, but also to the entire industry which they so unselfishly benefit. Unlike most "house organs" both publications subdue the desire "to talk business" and generously devote most of their space to boosting clay products supplying the clayworkers with good articles on manufacturing and selling.

The Letter Box

As To Abating of Smoke Nuisance.

The publication of John Schy's letter in the Dec. 16 issue and our editorial comments thereon, have brought forth a number of letters on the subject of smoke abatement.

Mr. Schy, if it is to be recalled, had been made the defendant in a law suit and asked our advice about the matter. His question was on the point of whether he was right or wrong and if, in our judgment he should continue to fight the case.

In our reply we first stated very clearly that this magazine concerned itself on the manufacturing and selling problems of the clayworker and left the legal end to those better qualified to answer it—the lawyers. However, we cited the case of the Bach Brick Company, of Chicago, to show how it fared when the question of law-suits came up. Our reply was not an attempt to explain any methods of abating the nuisance complained of, but to show that the Bach company had been forced by property owners to either move or abate the nuisance.

Some of our readers, however, especially the working men, seem to think that we were seeking a solution and have taken exceptions to the citation of the Bach case because it does not apply to Mr. Schy's case. With this explanation the following letters will prove of interest and may, after all, be of invaluable good in settling similar problems of smoke nuisances, as well as that of Mr. Schy's. The first letter is from the Manufacturers Equipment Company, of Dayton, Ohio. It says:

> "We are compelled to register a protest to the answer you have given in your Dec. 16 issue of 'Brick and Clay Record,' on page 1285, 'Kiln Gas and Smoke Cause Law Suit,' because the citation of the Bach Brick Company does not cover the case, as our investigation of the point you mention does not bear out the facts. If you were acquainted with the situation you would find that they put up two large stacks, possibly 75 to 100 ft. high, which overcomes the objection registered against them by their neighbors, and the device you refer to did not in any manner whatsoever solve the problem. We enclose herewith a list of the advantages brought about in the use of the Underwood Patented Producer Gas Burning System, and call your attention to Article 14 which is the salvation for this gentleman as against moving his plant, resorting to law or anything of that character."

Then follows the following 22 paragraphs which are given as a test of advantages gained by the use of the Underwood system:

"1. Applicable to the updraft and downdraft kilns already established or to new ones as installed.

"2. Insignificant investment compared to any other system.

"3. Concentrates the fuel handling to one location only.

"4. Saves labor, horses, carts, etc., used for coal distribution.

"5. The same saving in avoiding the removal of ashes, etc.

"6. Eliminates grate bars and furnace doors.

"7. Avoids the necessity of cleaning furnaces after each burn.

"8. Avoids the necessity of frequent relining of furnaces.

"9. Prolongs the life of kilns.

"10. Less than one-half the usual labor is required.

"11. Any high or low temperature may be obtained at will.

"12. Enables absolute control of temperatures.

"13. A powerful factor in overcoming inattention to and duty of the burner.

"14. An absolute and perfect smoke consumer affording the opportunity of operating plant within city limits without being classed as a nuisance.

"15. Clay products may be burned with a perfect oxidizing fire, enabling the clay to retain its own color, or by a full reducing fire, enabling the ware to be flashed to any degree of intensity which it will allow.

"16. In updraft kilns the heat can be forced to the top and in downdraft kilns to the bottom by mechanical pressure and a hard uniform burn is always assured.

"17. No fine coal or coke ever goes out with ashes, also no coal or ashes to be scattered about the yard, assuring absolute cleanliness about the kilns.

"18. A very great saving in fuel against using coal direct or other fuels.

"19. Drafts and general burning principles are not affected by weather conditions.

"20. Produces at all times the highest percentages of No. 1 ware.

"21. Where waste heat dryers are employed, a clean pure atmosphere is obtained from cooling kilns thus preventing scum and whitewash on the ware and deterioration of the ware.

"Demonstrations have shown a vast reduction in the time required for watersmoking and burning."

The next letter came from W. C. Kirkpatrick, consulting engineer, Chamber of Commerce Building, Chicago. He says:

> "I have noticed the letter of John Schy to the 'Brick and Clay Record,' pertaining to 'Smoke Nuisance' troubles. The remedy referred to by 'Brick and Clay Record' will not eliminate his troubles as it does for the Bach Brick Company.
>
> "If you will notice the article referred to in July 15 issue you will find the system is only applied to updraft kilns. You will also find this method referred to in the same issue under the title 'Settling the Fuel Question.'
>
> "However, Mr. Schy's plant can be made absolutely smokeless, or any other plant, provided economical meth-

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WATERPROOF
"NESTOR"
BELTING
CLEVELAND, OHIO.

BUILT
especially for
BRICK PLANT WORK

To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated
Carbonate of Barytes

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Other High Grade Chemicals For Clay Industries

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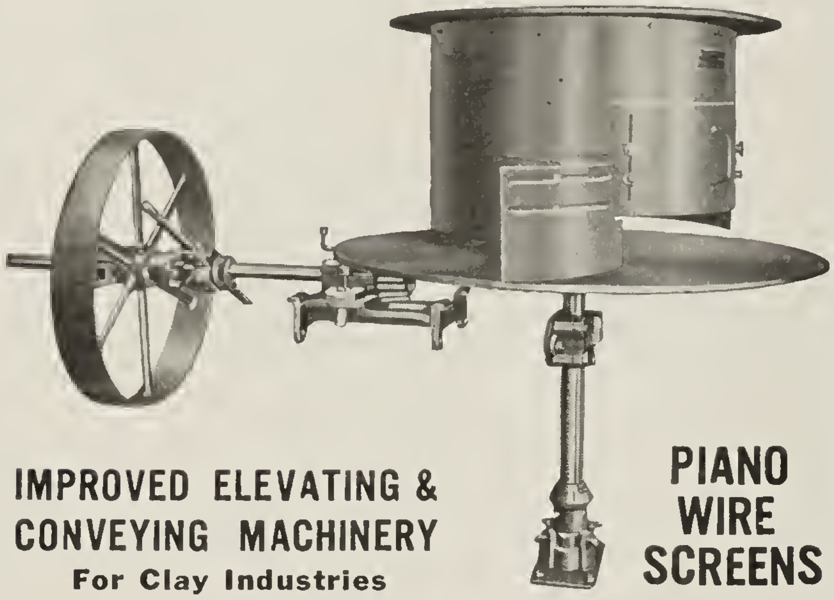

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Automatic Feeder
INCREASES CAPACITY — IMPROVES PRODUCT
Let us explain!
IMPROVED ELEVATING & CONVEYING MACHINERY
For Clay Industries
PIANO WIRE SCREENS
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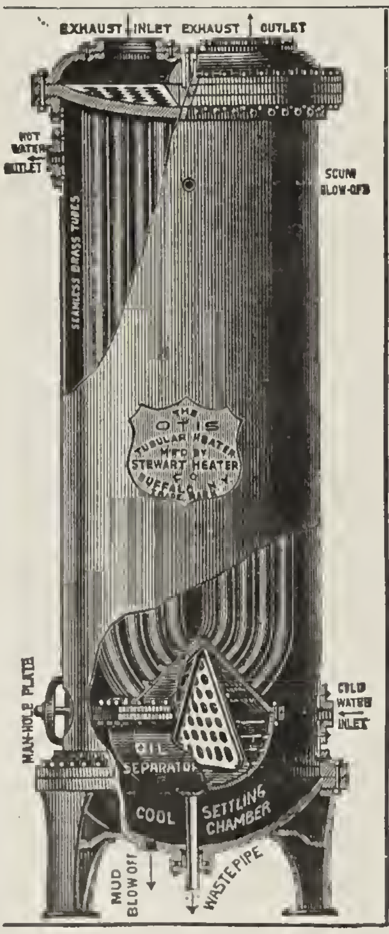

THE OTIS
Tubular Feed Water Heater, Oil Separator and Purifier
is not an experiment but a tried and trusted appliance that the makers are not afraid to
GUARANTEE
To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust*, so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator*.
We are so sure of the OTIS that we agree to pay all cost of a trial—freight, cartage, piping, etc.—if it fails to do all we claim for it.
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ods are employed in the generation of the heat. Then again it can be done in a number of ways which will not change the present method of firing.

"The Bach System referred to is the result of a suggestion made by the writer to Julius Bach when proceedings were first started against the Bach Brick Company, and to Julius Bach belongs the credit for the complete development, and to his brothers and himself belongs the credit for it being placed into practical use.

"The following suggestions may assist Mr. Schy:

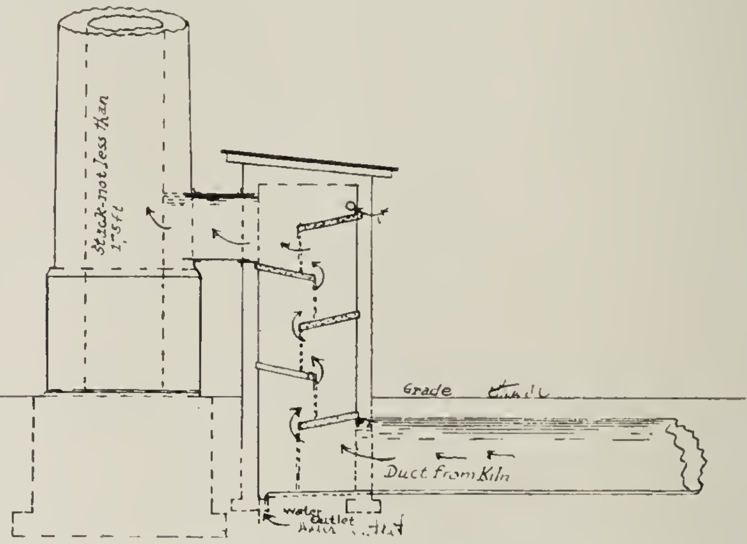
"1st. Producer gas can be applied in a practical manner to the work resulting in from 40 to 50 per cent saving in fuel and you will not be required to change the kilns. If this is applied right you not only can eliminate all soot, smoke, etc., but all gases arising from the kilns, thereby eliminating all cause for law suits and at the same time reduce the cost of burning your product over 50 per cent, including fuel labor.

"2nd. You can eliminate your draft stacks and connect your kilns to one underground-draft duct which must connect to a waste heat dryer through which all products of combustion from your kilns pass, giving you the benefit of the waste heat for drying, and the action of the moisture arising from the green brick eliminates a large percentage of the destructive gases.

"The dryer should be connected to a large stack at least 175 ft. high, and the escaping gases from this stack will be almost invisible, and if, in certain weather, the gases drop to the earth, it will be thoroughly diffused before coming in contact with vegetation.

"3rd. If you are making a product that would become injured in the dryer by reason of the fact that products of combustion from the kiln are passed through, then you can adopt a sample scrubber built of brick about 8x8 ft. inside, by about 16 ft. high. The base connected to the draft duct and the top to the stack.

"The inside would have five deflectors, as per enclosed sketch. At the top near the outlet, you would have a perforated water pipe which would be connected to a centrifugal pump or a tank.



"The water, therefore, falls from one deflector to the other in a downward direction while the products of combustion pass upward through the spray or films of water into the stack. The water can run off into a settling basin or into the sewer, carrying with it the destructible properties escaping from your kilns.

"After all you will find the firing of your kilns with gas, to be the most practical and economical method you can employ to eliminate your nuisance.

"If the clay product manufacturers could give engineers credit for at least having some knowledge, as well as sometimes showing they can apply common-sense to what is considered difficult problems, they readily could avail themselves of an engineer's ability which cannot help but result in the most good for the manufacturer and at the same time making it worth while for engineers to make the manufacturer's business a study.

"In your case you must have spent thousands of dollars for lawyer's fees, court costs, and you cannot hope to be benefited at all by the expenditure of that money. On the other hand, had you consulted a practical engineer instead of an attorney, he would have advised you along lines that would not only eliminate the cause for complaint but the result would have been economical production, and the money as spent would have produced the results you desired."

We have still another letter from the Grateless Furnace Company of Des Moines, Ia., in which that concern says its new Grateless Gravity Feed Fire Box will forever settle the smoke question by assuring proper fuel consumption. "This furnace not only means a SMOKELESS furnace, but also a fuel saving of 20 to 25 per cent."

We are pleased to see this discussion, as it not only opens up a possible solution to Mr. Schy's troubles, so far as his lawsuit is concerned, but it also points a way to the possibilities of fuel economy.

Write us what you think about the articles in this and future numbers. If you differ with some of the writers let us have your opinion.

Sees Opportunity in Texas.

G. C. Brown, 1301 Main St., Dallas, Texas, is going to be one of the "pioneers" who expects to get in on the ground floor in the "Lone Star" State. He writes:

"Referring to your article on page 1264 of your Dec. 16 issue as to the brick business in this territory, would state that I already have purchased $10,000 worth of clay land near Dallas, and shall equip it for making brick by the semi-stiff mud process of 100,000 to 200,000 daily capacity. Have already decided as to machinery for this plant and later shall add two dry presses."

Mr. Brown has reference to the article on the brick plants at Ferris and other close-by towns to Dallas, which was published in the last issue. In that article we called attention to the great undeveloped territory in Texas. Heretofore the clay found in Texas, and especially around the larger cities, lended itself only to the dry-press process. Recent discoveries, however, have shown unlimited deposits of shale which will permit the use of the stiff-mud machines.

Clay Tile Ousts Plaster Block.

Charles P. Oudin, manager of the American Fire Brick Company of Spokane, Wash., gives us one of the newsiest letters we have received in a long while. It follows:

"We are pleased to state that the plaster blocks shipped here from Oregon, to be used in the New Davenport Hotel, have been condemned, more than five carloads having been rejected.

"We have had the contract for terra cotta partition tile (as required by the Fire Underwriters) for the first story elevator shafts and stairways, and have now received the contract for the twelve upper stories, replacing the plaster blocks condemned. This new contract calls for $12,000 worth of clay partitions.

"We also have received a contract for 150,000 12-inch red velvet face brick for the O. W. R. & N. R. R. passenger depot in Spokane. This building will cost about $700,000.

"We have just furnished the longest building in the State of Washington, using 150,000 red paving brick for the C., M. & St. P. R. R. freight depot.

"Business in the clay industry is good, owing to the beautiful weather we are having, enabling brick masons to work so far this winter. Much work is coming up this spring, 1914, in this section.

"The $300,000 Cheney Normal School has been let to a Portland contracting firm and 350,000 face brick will be used. This material has not been ordered.

"'Terra Cotta Tile' has been recommended by the following architects: Bliss & Faville of San Francisco, Cal., and Holibird & Roche of Chicago, and their opinions were used by the New Davenport Hotel builders in their decision in favor of clay tile."

We receive few letters like the above. It is full of meat and we are sure that you who have read it will absorb some of the spirit of this enterprising clayworker, for his letter is brimful of enthusiasm.

Installs New Equipment.

The Perrysburg Tile & Brick Co., of Perrysburg, Ohio, writes:

"We have recently improved our factory by the addition of one large clay storage building 24x100 with an elevator in the center under the floor which carries the clay from the far or near end to the crusher. We also have installed a Buckeye electric-driven clay digger, made by Buckeye Traction Ditcher Co., of Findlay, Ohio, and have doubled our three-story tunnel dryer by additional tunnels the same height. The two floors above the tunnel are drying floors for large tile and blocks."

We congratulate General Manager Wilson and his associates on these evidences of prosperity. The addition of the electric-driven clay digger is of special interest. We know of several of these machines in use and they seem to be giving general satisfaction. E. Bigelow, of New London, Ohio, has had one in operation for years.

Finds a Fire Clay in Texas.

C. E. Bandisch, 301 Blum Street, San Antonio, Texas, who recently wrote us of his discovery of a first class shale suitable for making building brick and paving block of a high quality by the stiff mud process. Mr. Bandisch is writing again and tells us of another clay discovery he has made. His letter follows:

"I am sure you are always pleased to hear the news about clay or its products. I wrote you in my previous letter of my discovery of good shale clay for building as well as paving brick. I was going in the country the other day and met a Mexican. I saw he had some clay, or rather what looked to me like limestone, and upon investigating, I found it was a pure deposit of the best fire clay I ever saw. It showed 69 per cent silica; 28 per cent aluminum; 1 per cent iron oxide; 2 per cent magnesia. Making some bricketts from it, I burned it, in a muffle made by Denver Clay Co., also in a small kiln, built entirely from fire brick, that were made in St. Louis and in Texas and neither fire brick nor muffle would stand the heat those sample bricketts would stand. The clay never shrank the least bit, nor checked, while the fire brick and muffle melted.

"While having the highest heat on, I took two samples out and dropped them in cold water, and the result was pleasing to me and others, as the brick did not go to pieces and did not show the least sign of a check or crack in

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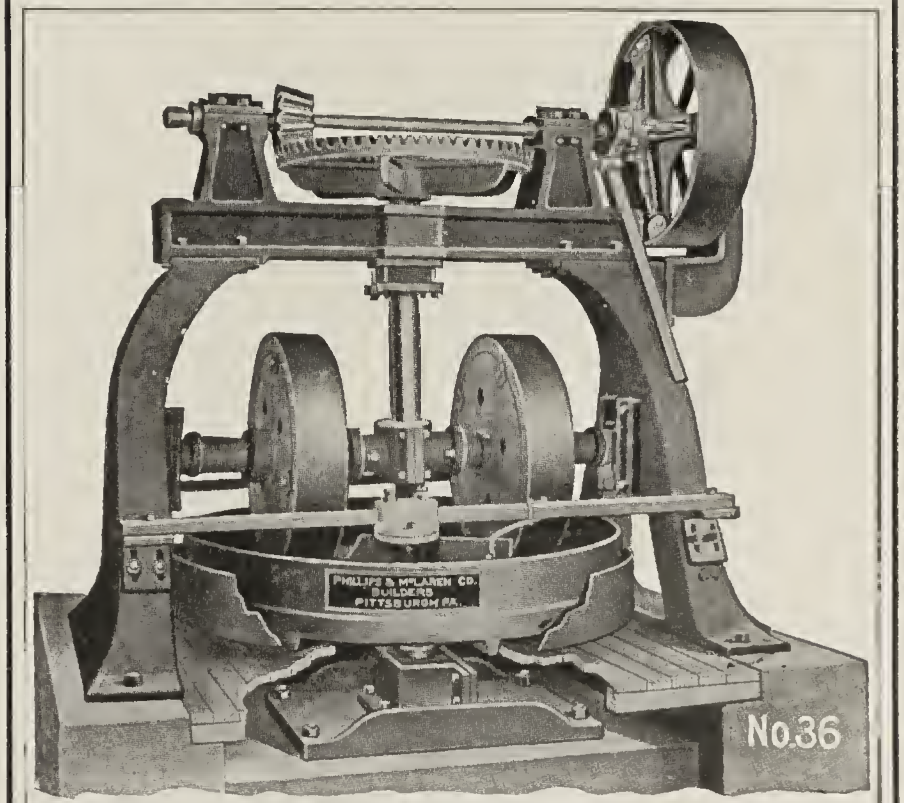

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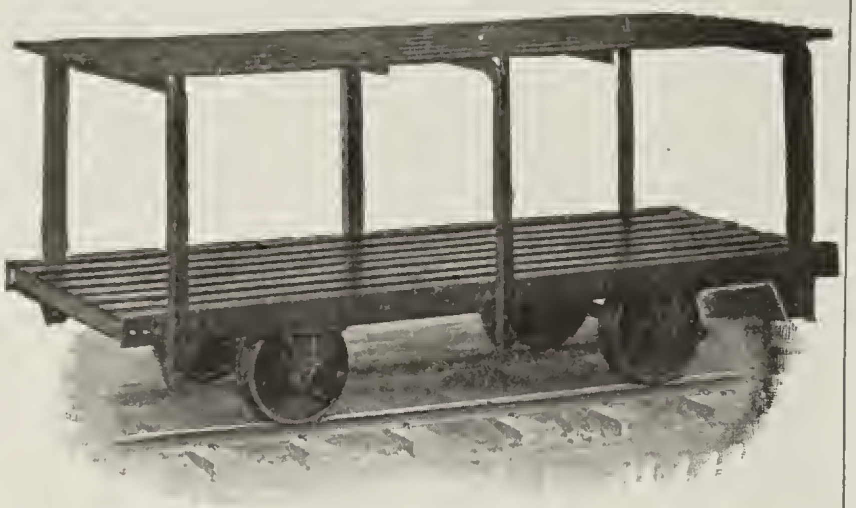

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result of many years of practical experience and there has been no branch of clay manufacture in which they have not been placed in service.

The investment demanded for the best possible car for your plant requires careful investigation.

The Industrial Car will be your first choice and the one eventually purchased. The manufacture of dryer cars is only a small part of our line. We have a car for every need.

Write for our catalog and let us submit an estimate for the coming season's requirements.

Electric Locomotive & Car Co.

Successors to The Industrial Car Co. and The Cleveland Car Co.

West Park, Ohio

Chase Improved Flexible Bearing Folding Deck Dryer Car

See this car before placing your order.

We also manufacture a full line of Side Dump, Bottom Dump and General Purpose Cars, Transfer Cars, Turntables, Switches, etc.

The Chase Foundry & Mfg. Co., Columbus, O.

them. I demonstrated the brick in a local factory where they use considerable fire brick and they told me that if brick should ever be made from this clay, they would guarantee to take the first 100,000 brick made. Now, someone will make some money out of this, as the supply is inexhaustible and is on a railroad.

"This clay will stand a hot fire at the start. Will you please give me your opinion on this clay?"

Judging from Mr. Bandisch's description we would say he has a very valuable shale which could be worked very profitably. We, of course, cannot give any opinion on something we have not seen.

A School of Roadmaking.

H. M. Baldridge, manufacturer of drain tile, hollow tile and building block, at Illiopolis, Ill., sends us a newspaper clipping which tells of the road school that is to be held at the University of Illinois Jan. 19-31. He says:

"I hope the clay men will be there with a million convincing arguments for their road material. I do not manufacture pavers, as you know, but am for burned clay everywhere, first, last and all the time."

That is the proper spirit. Boost for burned clay—no matter if you have to boost for the other fellow's product once in a while. Co-operative boosting is going to help us all.

From Far Away Australia.

"Brick and Clay Record" is read not only in the United States but in practically every civilized clime and country. Elsewhere we print a letter from Brazil. Here we have one from Australia. P. W. Miller, secretary of the Eureka Terra Cotta & Tile Co., Ballarat, East, Victoria, Ausrtalia, is the writer and what he says not only proves that this magazine is closely read in Australia, but also proves a good "puller" for the advertiser. He says:

"We note from 'Brick and Clay Record,' your advertisement in re waste heat dryers. We would be glad to receive some particulars and would arrange to pay for advice by correspondence if that is what is required. We would like to hear from you at as early a date as possible. An advertisement for you from this part of the globe might be of some use."

Mr. Butler Answers His Critics.

William A. Butler, 4321 West St., Oakland, Calif., the author of several articles on continuous kilns which have appeared in recent issues of this magazine, answers some of his critics who were given space in this department in the Dec. 16 issue. He says:

"In the Dec. 1 issue of 'Brick & Clay Record,' under the heading **The Letter Box**, I interestingly read three letters in reference to my articles on the continuous kiln.

"The first writer, very eager for the most interesting part of the story (which as a rule is the **continued in our next part**), and disappointed in finding in its place an article on such a small matter as 'How to make a continuous kiln pay.' proceeded at once to find fault with the more simplified form and favored the older form on which he had worked from his 18th to his 45th year.

"Letter No. 2 says: 'While reading with great interest Mr. Butler's article, there are many points which need elucidation,'

"The 'Draft Point' seems to be particularly obnoxious and should be eliminated. I would like to ask Mr. Hoene if I had my kiln going just right and maintaining my 'Draft Point' as it should be, what would be the result if I let a strong wind or blast of air through the open portion of the kiln?

"Mr. Vater writes that the blast of air would be a help when the draft in front is insufficient. Would not the result in this case be all 'up draft'?

"About the draft, pull or suction of a chimney: Mr. Vater is a little too sure of his 'canned formula.' At all times there is a positive and continual draft up a chimney or shaft of any kind, and many is the time that I had my 'eyes full' in taking down an inside scaffold from a toll chimney. There is on record in the United States Patent Office a patent granted, for using the continual draft up a shaft or chimney as a motive force or power. The patentee declares that he operated a sewing machine continuously from this force.

"I have observed before starting a kiln where there was a good draft through the flues and up the chimney, that shortly after lighting the fires this good draft ceased. Cause, Mr. Vater?

"I dropped a lighted newspaper into the main duct and it was quenched before reaching the floor of the duct.

"Is it possible that so large a flame could be quenched in so little carbonic acid gas as 3% to 6%, and with a manhole cover off the flue?

"As for the last letter from Mr. Hoene, he takes exception to my dislike for tall chimneys. Well, if Mr. Hoene had been in San Francisco on the morning of the great earthquake of 1906, and had seen the tall chimneys come down with the dull, sickening thud, he, too, might wish to cultivate the acquaintance of the blower companies."

Gets His Money's Worth.

Here's a man who knows a good thing when he sees it and does not hesitate to acknowledge it. He is W. C. Pratt, formerly of Augusta, Ark., but now manager of the Rector Brick and Tile Co., Rector, Ark. Mr. Pratt is one of our oldest readers. His letter follows:

"I have been a constant reader of 'Brick' and 'Brick and Clay Record' for years and could not do without it for the price of $2 per year, which I consider a trifle for the 24 big books full to the brim with good reading and useful information to all who are interested in clay working operations.

"I write this to let you know that I am now manager of the Rector Brick and Tile Co., of Rector, Ark. My subscription has been sent in from Augusta, Ark., prior to this year and I think I have 'Brick and Clay Record' marked up to my credit up to about March or April, 1914. If this is not right please let me know; I will renew my subscription the first of the year anyway. I wish you the compliments of the season."

Is Appreciative.

J. M. Hoskins, vice-president and treasurer of the Terre Haute Vitrified Brick Co., of Terre Haute, Ind., recently asked us for the name and address of 228 Missouri, one of our recent patrons of the 'Question and Answer Department.' This subscriber had a red-burning sand which he wanted to know if there was a market for. We sent Mr. Hoskins the desired information and this is his letter in reply:

"We want to thank you for the information contained in your letter under date of Dec. 10 regarding Question and Answer 228 Missouri. We have written the Webb City Joplin Concrete Supply Co. in regard to their sand and have given 'Brick and Clay Record' full credit. If this sand proves to be all that they claim for it, it will indeed be a great find for us and will give us the pleasure of putting another big feather in the already full cap of your very excellent journal.

"We extend to all of you our very kindest regards and the compliments of the season which is rapidly approaching."

Answers Queries on Underwood System.

I. M. Justice, of Dayton, Ohio, replies to the questions asked by a reader, in these columns, recently, in a letter which is given in full below. The correspondent mentioned raised the question of the loss of heat value in the conversion of coal into gas. Mr. Justice says:

"In the Nov. 18 issue of your valuable paper you published an anonymous letter under the caption of Questions New Gas Burning System. Of course, this was not the most courageous manner in which to state his belief about the system. For the benefit of your readers who may think his arguments are conclusive as to the inefficiency of the "New Gas Burning System" we want to present a few thoughts on the pro-side of the question.

"The arguments which he has set up against the new system are about the same as we have had for many years from professional men of high standing in the art of ceramics—the loss of heat value in the conversion of the coal into gas, the loss by radiation, the loss of the sensible heat of the gas, etc., and the inability to secure perfect combustion of producer gas when using air at normal temperature to support combustion. Now, there are some losses along these lines when using producer gas, but these losses are incomparable with those that occur when the coal is fired direct, such as the carbon which goes up the stack in the form of black smoke, the combustible gases that also go up the stacks, the coal and coke that goes out with the ashes and much energy in the form of labor in the distribution of the coal to the kilns, the collection of ashes, the cleaning of furnaces, burned out grate bars, furnace doors, etc.

"The results which have been obtained by the Underwood System in burning brick in periodic kilns with producer gas has placed this subject beyond the point of scientific or theoretical discussion, as what the professional men have said could not be done successfully has been accomplished economically and successfully and it now remains for the men of science to adjust their data to meet what the practical man has demonstrated.

"Detroit clay may burn at a low temperature but, however this may be, it requires forty gallons of fuel oil to burn one thousand brick into merchantable product. These same brick when burned in the same kiln by the Underwood System with producer gas were burned with four hundred pounds of coal. One gallon of oil is equal to eighteen pounds of coal and forty gallons of oil would be equal to seven hundred and twenty pounds of coal, in heat value. Now, since the brick were burned with producer gas at a fuel consumption of four hundred pounds of coal per one thousand brick, there must be some credit given the Underwood System for the economy shown. Brick made from Detroit clay have been burned in down-draft kilns with paving blocks at a temperature of 2,100 degrees "F" without showing any deformity, so it can hardly be said this clay requires only a low temperature.

"It is stated by your correspondent that some up-draft kilns are burned with oil because they have no control of the draft. If this is a true statement then the Underwood System is more to be desired because by it the brick are burned at much less cost with a forced draft under full control of the burner in charge in far less time.

"The Underwood System has now been fully investigated by the best known ceramic engineer in the country and has been endorsed and recommended by him."

We submit Mr. Justice to our recent correspondent without comment.

Prizes are Offered for Ideas in The Superintendent Department.

See Page 91.

Belt Users Protected

A recent decree handed down by the United States District Court of the State of Virginia enjoined an unscrupulous dealer from selling belts in imitation of the GANDY Belt for the genuine GANDY.

Similar decisions are being handed down every now and then in various states for the protection of belt users in general.

The GANDY Belt

is the original stitched-cotton-duck belting that has tempted so many imitators on account of its real merit.

The GANDY Belt costs only one-third as much as leather and much less than rubber belting, yet it wears longer than either, usually.

Get the red belt with the green edge, trade-marked and branded for your protection.

Sample on request.

The Gandy Belting Co.

732 W. Pratt St.. Baltimore, Md.
New York Office 88-90 Reade St.

SEGER'S

COLLECTED WORKS

A MINE OF KNOWLEDGE

Containing Many Nuggets of Valuable Clayworking Experience

We are receiving many orders for our recently-issued volume of Seger's Collected Works. Every clayworker has had an opportunity at some time or other to read some of the articles from the able pen of Hermann August Seger, and his writings have served as a base for progress in clayworking in every civilized country in the world. Seger's Collected Works, as issued by us, contains a collection of the articles that we think to be of the utmost value to our readers, and you could make no more profitable addition to your library shelves than by securing a copy of this work. It is handsomely bound in silk cloth, stamped in gold, and contains 304 pages of the best technical information. The size of the book is 6x9 in. Place your order at once before the edition is exhausted. Price $3.50, postpaid.

Book Department
"BRICK AND CLAY RECORD"
PLYMOUTH COURT, CHICAGO

Questions and Answers

Continued from page 90.

on this subject it has been our pleasure to read. In fact, it is about the only pretentious treatise on the subject of promenade tile and we advise our Georgia reader to procure it. Copies may be had at $5.50 for paper cover, and $6.25 for cloth, either from the Book Department of this journal or from Prof. Edward Orton, Jr., secretary of the society, Columbus, Ohio. We might add that Vol. 14 contains not only this article by Mr. Shoemaker but also all the other valuable papers contributed by members during 1912—a most profitable investment for any clayworker. We often wonder why more clayworkers do not secure copies of the Transactions. A complete set would be of incalculable value to any man interested in the manufacture of burned clay.

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287. *Georgia—We would appreciate any information you may be able to give us as to the best methods of drying and burning promenade tile in sizes* 6x6, *and* 6x9 *especially as to method of setting the tile in the kiln. Any information you may be able to give or reference to any particular book, will be appreciated.*

To refer you to the answer given 257 Georgia. We might add we are making special inquiries along this line and may be able to present an interesting article in some early issue.

Another Wants Book on Burning.

258. *Illinois.—I am in the market for a book on burning, one that may be understood by an ordinary kiln fireman. I have been in the clay industry for several years, but just recently left the same to develop some mechanical ideas. My old burner-foreman believes it will be necessary for him to have some information which I will not be in a position to give him now, and I wish to give him a book that will enable him to further advance himself. Kindly advise what you can recommend doing in this line.*

We refer you to 261 Indiana, published in this issue. We might add that in this issue there are several very valuable articles on burning by different authorities on the subject. We wish we could be of more practical assistance to you, but as we have told 261 Indiana, there are no books published on this subject—that is "handbooks" or books that tell HOW and WHY.

Use of Coal Dust in Burning Brick.

262. *Texas.—Will you advise me fully as possible as to the use of coal dust mixed in with the clay in the manufacture of brick? Will it open up tender clay that is subject to cracking? Will it make harder and stronger brick? Does it assist any in burning? Can brick so mixed be burned in common updraft kilns? About how many pounds of coal dust are used per* 1,000 *brick? Could lignite be used to produce the same results as coal dust?*

You do not state whether you are making your brick by the soft or stiff mud process We assume, however, that you are using the former of the two. If the brick should happen to be made by the stiff mud process, it is apparent that difficulty would be experienced in burning out the coal added, due to the hindrance offered to the entrance of the air into the brick necessary for combustion. If the clay is very plastic, and used as stiff mud, it is practically impossible to burn out the dust No special difficulty should be

$5 for an Idea—

You Can Write it in Twenty Words

Do you know some short cut to manufacturing efficiency? Have you devised a simple contrivance that lessens labor and improves your product? Have you a new wrinkle that helps your men or your fellow workers or that brings a profit to your employer?

If you have a suggestion of any sort that would be of benefit to a fellow workman, write it out in twenty words or more—one hundred should be ample, and send it to "Brick and Clay Record." We want it.

Brick and Clay Record Pays for Suggestions

We pay $1 for every suggestion sent us to be used in "The Superintendent's" Department, and the best suggestion receives a special prize of $5 each issue.

Have you a way of doing something that is different from the other fellow? Send it to us.

Have you a device that adds to the efficiency of your machine? Send it to us.

Have you a suggestion that improves the quality of your wares? Send it to us.

We Pay $1 for Every Suggestion

We are striving to make "The Superintendent's" Department of great practical value to our readers and we want you to help us. This department is intended as a symposium of ideas. It should bristle with useful tips and suggestions. Read it yourself for you may receive some little idea thereby that will be of great assistance to you. In exchange for the good that you receive contribute something for your fellow workmen.

Write your suggestions on one side of the paper—in ink and the shorter the better. Address it to "The Superintendent, 'Brick and Clay Record.'" Be sure to sign your name and give your address, so we can send you the One Dollar.

Brick and Clay Record
CHICAGO

encountered in this respect, however, if the brick are made of soft mud. The important feature in burning brick containing coal dust is that plenty of time be given for a slow complete combustion of the dust.

Bituminous coals and lignite are not often used for this purpose because of the volatile matter they contain. When the coal in the brick reaches the ignition point the evolution of the volatile hydrocarbons would be so rapid that a bloated brick would be the result. Lignite, being lower in volatile matter than bituminous coal, is therefore, preferable to the latter.

For this reason, viz., low content of volatile matter, anthracite coals are most frequently employed for this use.

The amount added varies evidently with the clay used, but probably 100 pounds per 1,000 brick represents an average figure.

The addition of coal dust would undoubtedly aid in the burning, because of the extra heat available resulting from its combustion, and would tend to make the brick stronger and harder. No difficulty should be experienced in burning brick, so treated, in common updraft scove kilns.

If the clay is extremely plastic and difficult to dry, the addition of coal dust might remedy matters somewhat, but the dust cannot be considered as a "leaning" agent, because, if added in amounts large enough to play this role, other difficulties would enter as a result, which would preclude its use in this respect.

There are just two clays that lend themselves to the use of coal dust in the stiff mud process—the Chicago district clay and the Hudson river clays. The Illinois Brick Company, for instance, uses coal dust in the outside courses to hasten burning. These are common brick, however, and the resultant rough face left by the combustion of the coal makes little difference.

Cracks in Stove Lining Burns.

264. *Vermont.—We have had some trouble at a fire brick plant in which we are interested and which largely manufactures stove linings. The trouble is that the brick keep coming out cracked. The cracks usually are somewhere on the edge of the brick, about midway, and run down toward the center for about one to two inches. We have been unable to remedy this. We are using practically the same clay, the same kilns, and the same men, in producing the goods as we have heretofore. We cannot find that these cracks appear more often in brick from one part of the kiln than from any other. If you can give us any advice that will help us to right this matter we will much appreciate it.*

Several explanations may be given for cracks appearing in the stove lining upon being burned. It is understood, of course, that cracks may develop from either an excessive shrinkage or expansion. One or several of the following explanations may fit your case:

(1) Although the clay you are now using may come from the same deposit as that used in the manufacture of the brick which did not show cracking, it still may vary considerably in composition from the latter. In this instance your clay is probably too silicious, which causes excessive expansion of the brick when burned, which results in cracking

(2) You may not be using enough plastic. Increase the amount of bond clay.

(3) In case you are using a flint fire clay in the manufacture of the lining, try using a smaller amount, replacing it with ground bats, or calcine the flint clay before using it. Too much flint clay may cause cracks due to high shrinkage.

Nuttall Rawhide Gears

We have all sizes of patterns to meet your special requirements.

The Rawhide is selected stock. The flanges are without seam or blowhole defects. The workmanship the usual high Nuttall standard, and the price and delivery right.

NUTTALL
Pittsburgh

Largest Gear Works in the World

Machine and Hand Brick Moulds
of Every Description

Write for Detailed Description and Prices

The G. B. Mentz Co.
America's Foremost Mould Makers
Wallkill, N. Y.

(4) Careless molding may be responsible, as a result of sand cracks, etc.

(5) Probably you are not drying the brick uniformly all over. Try turning them sooner.

It should be stated, that in cases of this kind, the clays or the mixture of clays used, should be given.

Wants a "Yellow" Brickmaker.

192. *Pennsylvania—I am enclosing you the co-operative coupon clipped from the current issue of "Brick and Clay Record" giving the list of products I make. I want to thank you also for the answer you gave me in the Oct. 21 issue in reply to my query about changing up-draft kilns to down-draft kilns. May I further ask you if you can give me the address of a yellow brickmaker in or near Philadelphia?*

We appreciate our Pennsylvania subscriber's response to our appeal for co-operative effort and hope that those other readers who read this will follow his good advice and do the same thing. We are glad to have been of service to him in regard to the kiln. As to supplying him with the address of the brickmaker we are afraid it is stepping outside of the province of this department which is conducted more for the solution of manufacturing and selling problems than as an employment bureau. Why not patronize the "Classified Advertising" pages?

Wants Names and Addresses.

253. *School—We are getting programs ready for our short industrial course and would like to get a list of the names and addresses of the members of the Canadian Clay Manufacturers' Association. If you cannot give us their list, can you send me the name and address of the secretary of this association so we can write him?*

We have no such list. J. W. Walsh, 1308 Queen Street, East, is the secretary of the Canadian Association.

Interested in White Clay.

172. *Ohio and 190 Pennsylvania—In your issue of Oct. 21 you refer to a person who has a deposit of white china clay. Will you kindly send his address? Shall also be glad to have the address of 190 Penn., who has white clay for sale.*

This inquiry is only one of several who have asked this same information and 172 Ohio and 190 Penn. certainly realize by this time how far-reaching is the influence of this department. We have complied with the above request which comes from the Product Sales Co., 575 Equitable Building, Baltimore, Md.

Getting the Curve to Silo Block.

224. *Illinois—Where can I ascertain how silo tile are cut so that the inside is shorter than the outside? We are desirous of going into the silo block manufacture and this problem comes up to us. We have been unable to find out if there is a machine on the market that will cut these blocks in the manner specified.*

We have made exhaustive inquiries among the silo block manufacturers as to the machines in use for this purpose and find only two that are considered practical by those we have corresponded with. There may be others on the market but we have not heard of them. The two machines referred to are the Bensing Automatic Cutter, made solely by the J. D. Fate Company and which has a special patented device for forming the circular block and cutting it as required. The other machine is a hand device and was invented by an employe of the Davenport Brick & Tile Co., and is in use, not only in that plant, but many others. The Bensing machine, of course, has greater capacity and takes care of the column of clay as fast as the auger machine can send it out. The operation is entirely automatic and has the advantage over the hand-method of being exactly accurate. Nearly all the machinery manufacturers and dealers handle the Bensing machine or it can be obtained direct from the manufacturers and patentees—the Fate Company. The hand machine is in the nature of a bow wire cutter which is attached to a table at the mouth of the auger and is operated by a man who, using a measuring scale marked on his table, cuts the column of clay as it passes out, a form on the table curving the clay to the desired shape. It is necessary to have a second man to take off the tile or block. The capacity is limited to the speed of the man who does the cutting. Some men, however, become quite proficient and, while never equalling the automatic machine, or coming anywhere near it, do satisfactory work where the output is not large. It seems the automatic machine would be more economical in any case, as it does away with one man and has the advantage of accuracy and greater speed.

As to Care of Belting.

249. *Georgia—I want some information as to the proper care of belting. We use a great deal of cotton stitched belt. We find it preferable to rubber belt, but the belt gets stretched a great deal when we have a high wind and becomes very hard and dry on account of the dust flying around the brick yard. Our belt bill is enormous. We use entirely too much belt and do not get near the life out of the belt that we should. We would like to have some suggestions in regard to this and would be glad if you would give it as much publicity as you think practical. We believe a discussion would be valuable to all.*

We have submitted this problem to a number of practical engineers and to some of the belt manufacturers. One engineer, who has to contend with all sorts of belts under all sorts of conditions suggests the use of castor oil on the canvas belt to keep it soft and pliable. All belts, especially if exposed to the air much, require a dressing of some sort and castor oil is far better than most of the advertised products. It does not injure the fabric as does linseed oil and other substances. There also is a preparation advertised in this journal—"Cling Surface," which gives excellent results. A belt manufacturer solves the problem in this manner: "Some cotton stitched belts are filled with compounds which, while affording some lubrication for the fibres of the belt when first installed, soon oxidize, and become hard, causing internal wear. A high grade stitched-canvas belt is filled with a non-oxidizing compound which maintains pliability. Furthermore, a high grade belt of this kind, aside from being filled with a heavy compound which does not get hard, causing internal wear and the breakage of the belt, is covered with an outer coating of a heavy mineral compound which hermetically seals the inner lubrication, keeping the belt pliable. We have known of instances where cheap belts did not give economical service, and the user in looking for relief used too heavy a belt, that is, a belt of too many plies for the size of his pulleys. Care must be exercised in selecting belts to see that too heavy a belt is not used on small pulleys, as, regardless of the quality of belting, if it is too heavy for the pulleys, the belt will soon be broken down."

We submit the question to our readers and will be glad to give space to any discussion that may develop.

For what profit it a man—

to learn where he may increase the economy and efficiency of his equipment, yet fail to take the requisite action?

Goodrich
LONGLIFE and MAXECON
CONVEYOR BELTS

reduce tonnage costs.

Act!

Elevator Belt
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There is nothing in Goodrich Advertising that isn't in Goodrich Goods.

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Williams
Wet Clay Grinder

This is the ONLY machine that will GRIND clay and shale direct from the bank at ALL times WITHOUT CHOKING UP.

ALL ADJUSTMENTS PATENTED

The Williams is manufactured and licensed under ninety-seven separate and distinct patents.

The Only Machine of Its Character Made

The hammers are adjustable and the position of grinding plates may be changed at will while the mill is in motion. This is done by a hand wheel on outside of machine.

The Williams is thoroughly steam-jacketed both front and back, including the hopper, top and bottom of machine.

**We Can Work Any Clay
That Will Make Brick**

Write for Complete Clay Catalog No. 18 with List of Users and Endorsements.

**Williams
Patent Crusher & Pulverizer Co.**

Factory: St. Louis, Mo. 2701 No. Broadway

CHICAGO OFFICE: Old Colony Bldg.
SAN FRANCISCO OFFICE: 268 Market St.

Cost of Brick Pavement.

254. *Wyoming—What is the cost of a vitrified brick pavement? We are considering doing some street improvement in our city and I want to be able to give some actual data.*

We have asked Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, to answer this question for us, he being best qualified to do so, and his answer is worth preserving by every clay worker for future use. He says:

The cost of a brick pavement cannot be made with entire satisfaction, for the reason that costs vary greatly in different places.

The expense of each item depends upon many things.

Labor cost and the amount that labor accomplishes varies very greatly.

The preparation of the subgrade varies so much.

In some places, but little excavation has to be done, gravelly and sandy condition of the soil is such that scarcely any drainage is necessary. It may not be necessary to have a great thickness of concrete foundation, or it might even not be advisable to have any concrete foundation at all.

(So you cannot more than approximately give the cost, and that is only a guess.)

It is rather more satisfactory to determine just what is going to be done and then apply local information as to cost. For instance, if an average of 8 in. is to be excavated and disposed of, local men ought to know what it would cost to do that grading. In case of the concrete base, if it is 4 inches in thickness, they ought to be able to say what material this can be made of, at the least cost, for instance, gravel and broken stone and how much it ought to cost.

Then take the price of sand, how much 2 inches of that will cost, spread on top of this foundation. Then, again, what cost per yard brick can be bought for, and placed in position.

If I were in your city, I would be able to answer your question with much greater satisfaction, by careful investigation and inquiry, at the expense, probably, of a few hours' time.

As it is, at this distance, unacquainted with your conditions, it is difficult to say.

An estimated cost in all kinds of municipal work, streets included, is only expected to furnish an approximate idea and it is expected that the figures shall represent an outside price. It serves as a kind of protection against dishonesty, fraud and graft, because most statutes of our states and ordinances in municipalities provide for the contract not exceeding the estimate cost or that it shall not exceed it beyond 10 per cent.

Now for general information as a greater accuracy in the matter, it is scarcely possible for us to afford you a very satisfactory estimate but to furnish a basis for your own estimate in this matter, let us consider the probable steps and that which must be paid for in a proposed improvement of this kind.

First, the necessity of drainage. The condition of your storm and sanitary sewer has much to do with determining the cost of this step. In street paving it is sometimes neglected but should never be. In order to provide against disastrous thermal action, the road bed, that is, the soil underneath the street, should be thoroughly drained by tiling, which will lead to whatever sewage plan you have for general drainage. This being done, the necessary excavation must be cared for. Now that is generally estimated by the cubic yard. It may be much or it may be little that is necessary to be taken from your street.

The curb if not already considered sufficient must be made so and that may require possibly a new curb, or it may require redressing and resetting. The figure of cost of this work is usually estimated by what is required.

Then the natural foundation must be compressed smooth and brought to a perfect grade corresponding with that of the finished street.

Thus may be considered the cost of each step required for the work. In detail the following may approach an approximate estimate for each of the items, but as explained, it cannot be expected that it will accord with your local requirements or conditions; but the suggestion may assist you.

Cost of drainage reduced to square yards of the pavement	.10
Grading and excavation per cubic yard, 40c.	
Reduced to square yards of the pavement	.25
Curbing per lineal foot, 50c.	
Reduced to square yards of the pavement	.20
5-inch concrete base per square yard	.45
Rolling and compressing 2-inch sand cushion in place, per square yard	.10
Brick in place rolled and compressed in place, per square yard	1.20
Application of the cement filler in the joints, per square yard	.13
Expansion cushions along the curb on either side.	
Reduced to square yards of the pavement	.03
Sheeting the green pavement with sand and dirt, barricading and protecting during ten days for setting and curing the cement filler	.10
For contingencies and profit 10 per cent	.25
Total	$2.81

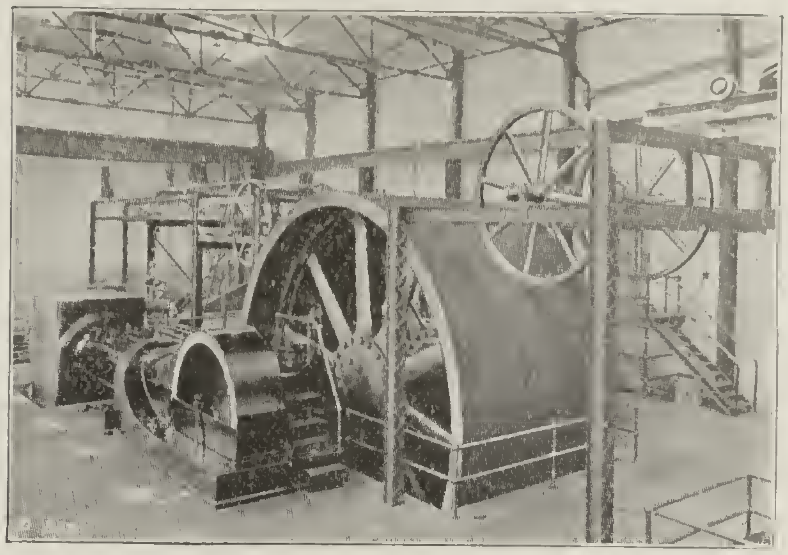
These figures may or may not accord properly with prices and local conditions but each one of these items separately by inquiry, quotation, etc., may approach to a close proximity of cost at which the work can actually be done for.

We hope the foregoing suggestion may meet with some degree of satisfaction, your situation. We wish we could do better.

As to "Harvard" Brick.

265. *Michigan—Can you give us any information as to the name and location of the manufacturers of the "Harvard" brick?*

Genuine "Harvard" brick are made only in New England—that is, in New Hampshire, Vermont, Massachusetts and Connecticut. The greater proportion of the output is controlled by the New England Brick Company, with offices at 178 Devonshire St., Boston, Mass. Parry Brothers, of 166 Devonshire St., Boston, Mass., have yards at Epping and at Gonic, N. H., where they make one of the best "Harvards" on the market. The Spiers-Fish Brick Company, of 79 Milk St., and D. Washburn & Sons, of 166 Devonshire St., Boston, Mass., are also producers—the latter making the famous "Washburn" Harvard brick, of which are specified, probably, ten times the number, each year, as the Washburn yards can produce. No "Harvards" that is, no brick that resembles the "Harvard," even distantly, is made anywhere outside of New England. Genuine "Harvards" are made of a peculiar clay, are hand-molded and water struck. They have a certain proportion of the headers ranging in shade from dark red to green—the latter shade being produced by burning with wood. The heads are wrinkled and cracked, and never have been successfully imitated in any way other than the New England method of burning, nor in any clay other than that found in the New England states.



DODGE

A Dodge Rope Drive Job, Designed and Installed By Dodge Engineers

Most Power for the Least Money

DODGE rope drives are operating successfully in many clay working plants, transmitting power economically under all sorts of conditions. Some of them have solved difficult transmission problems and represent important engineering achievements. There are Dodge drives working between centers as distant as 700 feet, and between centers as short as 10 feet—indoors and outdoors.

Rope drives properly designed possess the flexibility and elasticity required for main drives where the load is fluctuating; for driving at angles; and over or around obstacles, and they are positive in transmission, free from electrical disturbance and low in first cost and in maintenance expense.

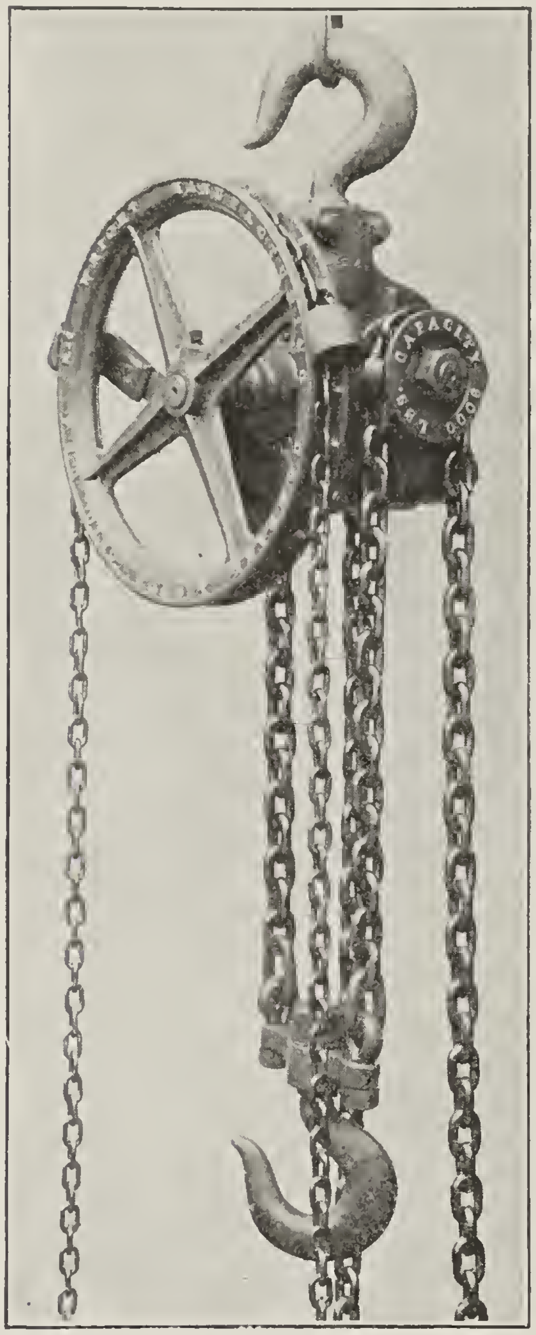
Our experiences of 28 years and more have been compiled in book form. They make interesting reading for managers, superintendents, master mechanics and chief engineers in the clayworking industry. We will be glad to send the book free for the asking.

Dodge Manufacturing Company
Everything for the Mechanical and Economical Transmission of Power
Mishawaka, Indiana
BRANCHES
Philadelphia 815 Arch St.
Boston 137-139 Purchase St.
Cincinnati 126-128 W. Third St.
Atlanta 28 S. Forsyth St.
Pittsburgh 337 Second Ave.
Chicago 208-214 So. Clinton St.
New York 21 Murray St.
Minneapolis 100 No. 3rd St.
Indianapolis Merchants Bank Bldg.
St. Louis 408 N. Fourth St.
Portland, Ore. 14th & Lovejoy Sts.

WRIGHT HOISTS HELP TO SPEED UP THE REPAIR GANG

You can shorten that annual shut down for repairs and so increase your 1914 output by installing a Wright Hoist. Start the New Year right by making Brick a week earlier.

STEEL HOISTS NEVER BREAK



Wright Standard Screw Hoist, ½ to 20 Tons

Write for information on Hoists of from one-half ton to twenty tons capacity and Traveling Cranes.

WRIGHT MFG. CO.
LISBON, OHIO

STEEL HOISTS NEVER BREAK

Use of Feldspar.

267. *Ohio—What is feldspar used for? Is it profitable to handle it?*

The principal use of feldspar is in the manufacture of pottery enamel ware, enamel brick and tile and electrical ware. The most important use is in the body and glaze of various grades of pottery and vitrified sanitary ware, in which feldspar constitutes from ten to thirty-five per cent. Its value in pottery is that it melts at a lower point than other ingredients and serves as a flux, binding the clay and quartz particles together. In glazes the percentage of feldspar used is higher than in the body and runs from thirty to fifty per cent. Other uses of this material not requiring so high a grade as the pottery trade are in the manufacture of emery and corundum wheels, where it serves as a binder; in the manufacture of opalescent glass, as a poultry grit; as a constituent of roofing material and for surfacing concrete work. There are some small quantities of the purest grades used in the manufacture of artificial teeth, this being the grade that brings the highest price, from $6 to $8 a barrel of 350 pounds. It is also used in the manufacturing of scouring soap and window wash.

Removing Scale From Boilers.

288. *Illinois.—We have noticed in "Brick and Clay Record" within the past year, an article describing a method of removing scale from tubular boilers by filling the boilers with cold water and running live steam through the flues. Can you send me a copy of this article or advise me of the author's name?*

The article was written by W. B. Williams M. E., and is on page 174. July 15, 1913 issue. We have sent you an extra copy of the same.

Wants Sacks for Fireclay.

305. *Ohio—Will you kindly put us in touch with someone size? We use these for packing clay.*

We are advised that M. E. Gifford, representing the H. & L. ing, in Chicago, has bags of this kind, and have forwarded his address to our Ohio correspondent.
Chase Bag Company, with offices in the Peoples Gas Build-
manufacturing "Osnaburg" sacks or cement bags on 100-*lb.*

Wants Face Brick Maker's Names.

284. *Maryland—Please advise where we can get a list of members of the American Face Brick Manufacturers' Association. We desire to establish a branch office in Baltimore and take an agency for all clay products not manufactured by us.*

The December issue of this journal, page 1239, contained a list of all the members of this association that was in attendance at the French Lick convention and practically a full membership was represented. R. D. T. Hollowell, Park Building, Pittsburgh, Pa., is secretary of the association and can give you a complete list or any other information.

Wants Binder for His "Bricks."

252. *Chicago—Readers of "Brick and Clay Record" should save all copies and have them bound in yearly, indexed volumes, instead of keeping them loose and disorderly on dusty shelves. Why does not "Brick and Clay Record" quote us a price for this work so we may all have a durable and uniform binding. This is the best reference book on the clayworker's shelves.*

We have had numerous suggestions from readers along this line and our Chicago correspondent has prompted us to make arrangements for a binder such as he asks for.

Machines and Equipment

(*Continued from Page 99.*)

H. J. VOTAW

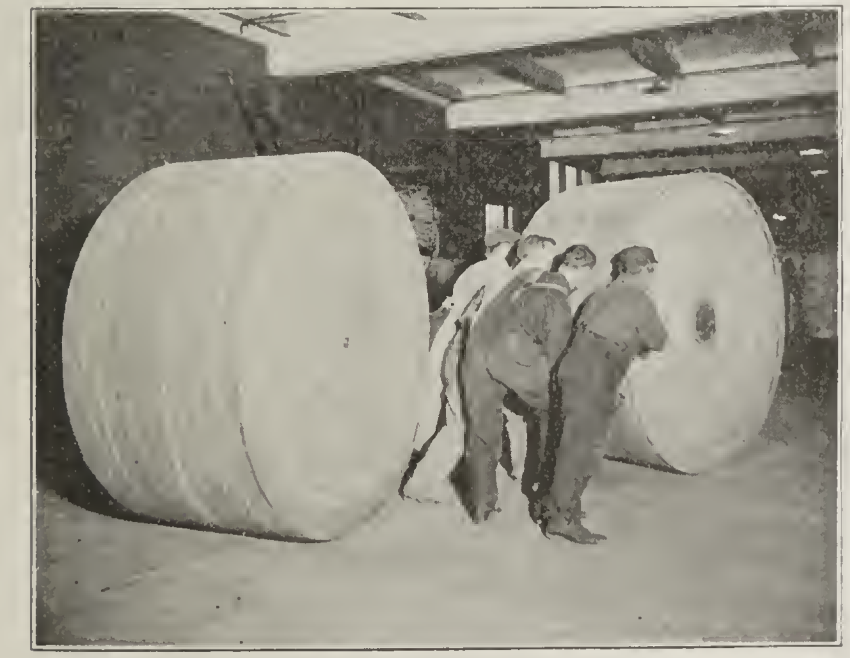
Salesmen usually know how to talk and it is worthy of special mention when one is met who is non-communicative. This rare specimen is H. J. Votaw, one of the representatives of the J. D. Fote Co., of Plymouth, Ohio. Of course Mr. Votaw knows how to talk and does talk or how else could he sell all the big orders he does? The trouble seems to be that he does not like to talk about himself and that does place him in the special A class, for what salesman do you know who is so modest as all that? Because Mr. Votaw insists on being modest—that is modest about his own personal affairs—we must, in justice to this rare trait, refrain from mentioning the subject a representative of this journal approached him on. Suffice it that he is now living in Chicago and in one of the nicest little apartments on the South Side and that—well, that is as much as we feel at liberty to tell.

Mr. and Mrs. Geo. B. Drennan, of Plymouth, Ohio, sent out a very neat holiday card to their friends. Mr. Drennan is secretary of the J. D. Fate Co., Plymouth, Ohio.

The Illinois Brick Co. of Chicago increased its semi-annual dividend, Dec. 23, to 3 per cent. Six months ago 2½ per cent was declared.

A 14,000-lb. Longlife Conveyor Belt.

The accompanying photograph shows a "Longlife" conveyor belt built in the huge belt room of the B. F. Goodrich Co., at Akron, Ohio. This conveyor belt, (which is to be used in handling coal) measures 1,322½ feet in length, 36 inches in



Cart Loads of Clay at one Blasting of a New Jersey Clay Bank.

BLAST CLAY BANKS WITH

DU PONT

Red Cross Dynamite

To get the clay into the best condition for handling speeds up output and cuts down costs.

Many large and successful plants are using explosives for blasting their clay banks. The Norfield Brick Yard, Norfield, Miss., reports that

"Red Cross Dynamite gives the best service of any powder or dynamite previously used."

It will be a wise move on your part to investigate this explosive feature. A few charges of the proper brand will bring down cartloads of clay in just the condition required for quick and cheap handling.

ASK us to help you determine the Du Pont Explosive adapted to your conditions. We've over a century of experience in making explosives. We know which is the most satisfactory for the job described.

TRY Red Cross Low Freezing Dynamite in the clay pit. Why stick to old, slow, costly methods when modern clay plants are blasting down tons of material at one operation?

Tell us your conditions. We will gladly aid you in getting the best results with explosives in your clay pits.

ADDRESS DEPT. 419

DU PONT POWDER CO.
Established 1802
Wilmington, Delaware

Flexible-edge Leviathan conveyor belt, 68 ft. by 18 in., 5-ply, in use several years.

THE best method we have for "getting acquainted" with a man is through a Leviathan or an Anaconda Belt. When he has put that belt into use, and watched it day after day—then we know each other better; he has faith in us and our goods—especially if he compares his "Leviathan" or "Anaconda" with some other belt.

LEVIATHAN AND ANACONDA
ELEVATING
TRANSMITTING
CONVEYING
BELTING

Our nearest house will gladly tell you about "Leviathans" and "Anacondas" for your work.

Main Belting Company
Philadelphia

New York **Chicago** **Boston**
Pittsburgh **Seattle** **Birmingham**

Main Belting Co. of Canada, Ltd.
Montreal **Toronto** **Calgary**

width, is of 7-ply construction with a 3-16 inch top rubber cover, and weighed, net, over 14,000 lbs. In order to handle it in shipment it was necessary to divide it into two sections but it will be used on one conveyor. The Goodrich factory is the largest in the world ,and its belt room is likewise the greatest in size and capacity. Transmission, elevator and conveyor belts, ranging from the smallest transmission to immense 72 inch conveyors, may be turned out at the rate of approximately four miles per day. This vast production has enabled the Goodrich factory to effect many manufacturing economies and to offer service which has been the subject of much favorable comment. Shipments are being made constantly to the four corners of the earth, and Goodrich belts, especially "Longlife" conveyor, are to be found in mines and plants everywhere, for instance in the Hawaiian Islands, Canada, Newfoundland, Mexico, Central America, Panama Canal, West Indies, Colombia, Chile, Argentina Republic, Peru, Venezuela, England, France, Spain, Belgium, Germany, Austria, Russia, Sweden, Norway, Denmark, Italy, Algeria, East Africa, South Africa, Japan, Christmas Islands, South Sea Islands, Australia, and all over the United States.

The North Bend Fire Brick Company, has completed extensive improvements at its plant at North Bend, Pa. Changes have been made in the equipment for feeding, storing and delivering ground material, which involved considerable additional building, and they have installed an American Road Machinery jaw crusher and an additional Clearfield wet pan. The capacity of the plant has been greatly increased and the processes made more economical than in the past. The complete installation of the extensions and improvement was made by the engineering Department of the Clearfield Machine Shops, of Clearfield, Pa.

Builds Hard Service Machinery.

With a plant located in the heart of one of the richest fire-clay districts in the country, the Clearfield Machine Shops have, naturally, made the equipment of fire-brick plants a specialty, but at the same time, they have extended their sphere of activity to include the steel and silica sand plants that dot the Western Pennsylvania section. It is unnecessary to dwell on the fact that in equipping plants of this character, the machinery has been brought to a high state of efficiency and has been designed to work well, wear well and meet the economic requirements of "big business." The partial list of machinery installments made by the Clearfield company is given, in order that readers of this journal may understand the immensity of the work this concern is doing. Among others, it includes: The Harbison-Walker Refractories Company, operating about 30 plants, and to whom the Clearfield Machine Shops have furnished about 50 wet and dry pans, an equal number of Wynn pan emptiers, and about 100 hand presses. The American Refractories Company, at Joliet, Ill., two 8½ ft. dry pans, five 7½ ft. wet pans, five Wynn pan emptiers and eight hand brick presses. The Ashland Fire Brick Company, at the Ashland and Clinton plants, four wet pans of various sizes. The Federal Refractories Company, at Alexandria, Pa., four 7½ ft. step wet pans, and one 8 ft. special pan. The Hayes Run Fire Brick Company, at Orviston, Pa., two 7½ ft. underdriven wet step pans, one 8½ ft. dry pan and six hand brick presses. The general Refractories Company, at four plants, five dry pans, thirteen wet pans of various types and capacities, nine hand brick presses and eight Wynn pan emptiers. The Elk Fire Brick Company, of St. Marys, Pa., one dry and one wet pan, one Wynn pan emptier and three hand presses. The George S. Good Fire Brick Company, at Clearfield, Pa., three pans, dry and wet, and four hand brick presses. The Clearfield Brick Manufacturing Company, manufacturers of paving and building brick, at Clearfield, Pa., two 9 ft. dry pans. The Bickford Fire Brick Company, at Curwensville, Pa., five 7½ ft. wet roller pans, one 9 ft dry pan, five Wynn pan emptiers and five hand brick presses. The Burns Fire Brick Company, of Williamsport, Pa., one 7½ ft. wet roller pan. The Clearfield Fire Brick Company, at Clearfield, Pa., four pans, three Wynn pan emptiers and ten hand brick presses. The Carnegie Steel Company, at Pittsburgh, Pa., three Wynn pan emptiers. The Clearfield Clay Working Company, making pavers and builders, two 9 ft. dry pans. The Eagle Brick Works, of Lock Haven, Pa., making building brick, two 9 ft. dry pans. The Clearfield Sewer Pipe Company, of Clearfield, Pa., two 8½ ft. dry pans, two 9 ft. dry pans, two Wynn pan emptiers. At this plant six additional pans will be installed. The Central Clay Products Company of North Tonnawanda, N.Y., one 9 ft. dry pan. The North Bend Fire Brick Company has recently finished a complete revamping of its plant at North Bend, Pa., the engineering department of the Clearfield Machine Shops having planned and executed the entire installation, which consisted of a complete change in its delivering, feeding and storing equipment, new buildings, an American Road machinery jaw crusher and an additional Clearfield wet pan. Complete descriptions of the Clearfield pans, hand presses and Wynn emptiers will be sent to interested plant owners on request.

The Wynn Patent Pan Emptier.

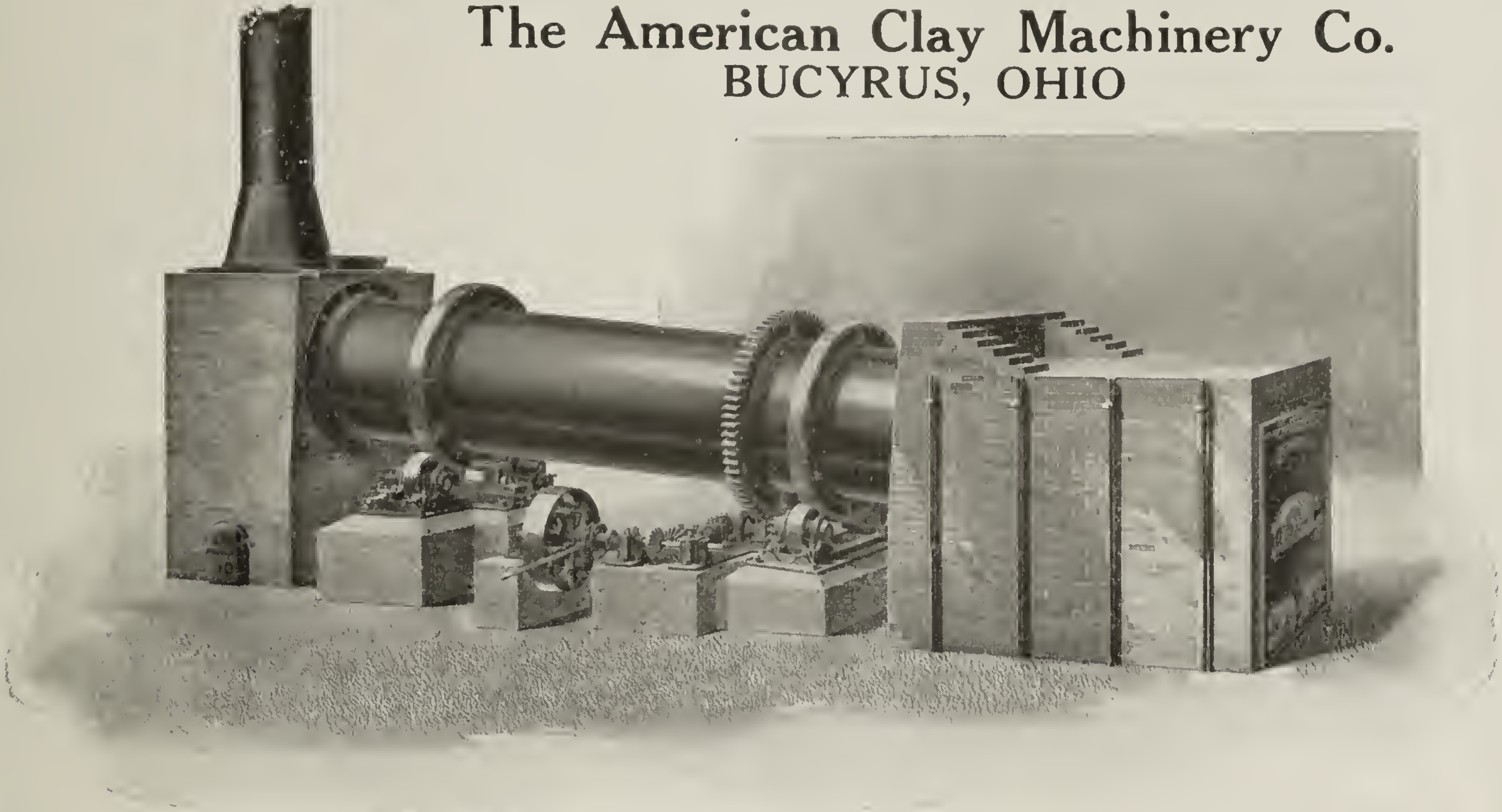
The capacity of a wet pan is problematical until it has been tried out under actual working conditions. The rated capacity is as apt to be exceeded as it is to prove excessive, and, in the latter case, there is nothing to do, but buy more equipment. The same condition arises when increased business necessitates increased capacity.

Here the Wynn Patent Pan Emptier comes to the rescue, by increasing the present capacity 50 per cent, without compelling the plant owner to provide additional space, build heavy foundations or expend any great amount of money. It

Rotary Dryers of Quality

We manufacture a line of Rotary Dryers covering a large range of sizes and capacities and adapted to drying clays, sands, marl, slurries, fertilizers, crushed lime stone and for calcining fire clays, roasting ores and handling a great variety of other materials from which moisture must be removed at low cost or in which special treatment is required. Correspondence regarding requirements will have prompt and careful attention. These Dryers are excellently built. We build a full line of Clay Working Machinery.

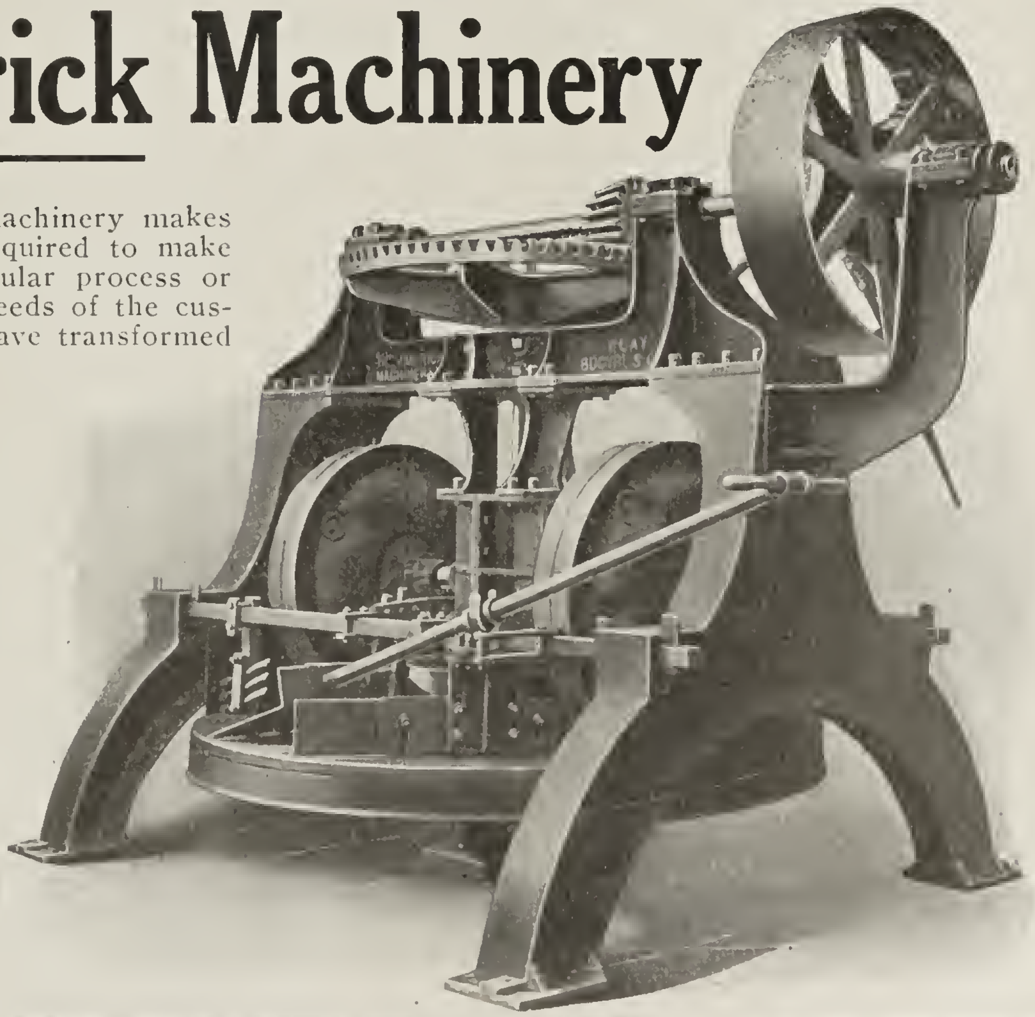
The American Clay Machinery Co.
BUCYRUS, OHIO



Sand-Lime Brick Machinery

Our complete line of Sand-Lime brick machinery makes it possible to secure just the machinery required to make your plant a success. We favor no particular process or type of machinery, but are guided by the needs of the customer. Our Wet and Dry Grinding Mills have transformed a number of unsuccessful plants into dividend producers while our Presses, Mixers, Hardening Cylinders and other equipment are of equal quality. We can exactly meet the needs of any manufacturer with a quality of machinery which will operate at a profit with a minimum amount of attention and expense. We build every machine required for successful Sand-Lime Brick manufacture and for making Clay Products. Correspondence solicited.

The American Clay
Machinery Co.
WILLOUGHBY, OHIO



CHICAGO BRICK MACH'Y CO.
UP TO DATE MACHINERY
CHICAGO, U.S.A.

Elwood Dry Press
Auger Brick Machines
Down Delivery Tile Mills
Oil Burning Equipment
Crude Oil Engines
Piano Wire Screens
Dry and Wet Pans
Soft Clay Brick Machines
Pug Mills
Wet and Dry Clay Disintegrators
Smooth and Conical Roll Crushers
Wood Moulds
Trucks and Barrows
Kiln Fittings

If you are in the market for any of the above we will be pleased to quote you.

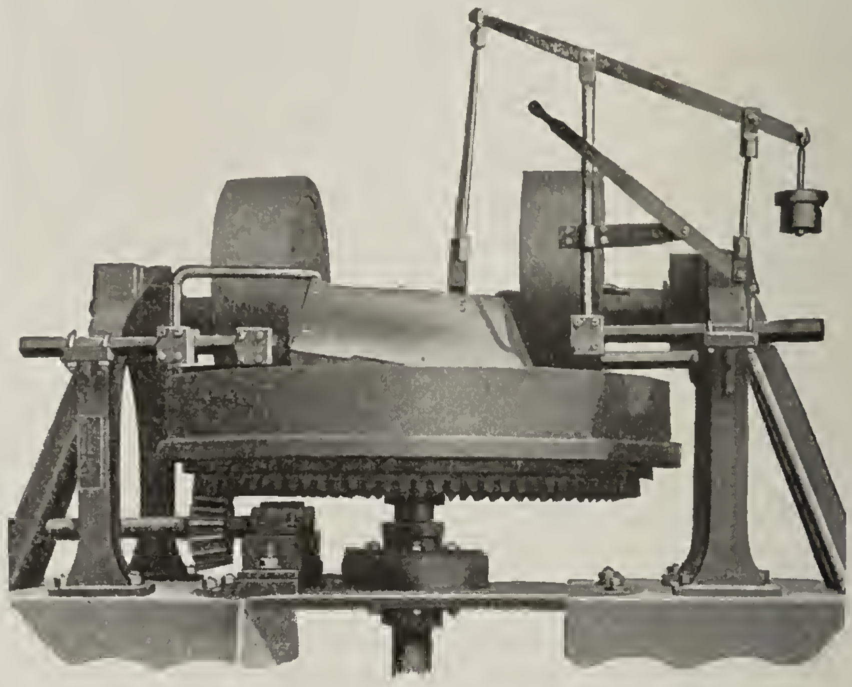
Catalogs upon request

Chicago Brick Machinery Co.
20 W. Jackson Blvd. Chicago, Ill.

will carry the plant along over the time of normal increase and then point the way to an economical plan of equipment for the future. This point of increased capacity, through use of the Wynn Patent Pan Emptier has been proven time and again at plants where two pans, with Wynn patent emptiers, are doing the work of three pans, without this attachment.

A glance at the accompanying illustration will show that the device consists of a mold board or plow, the point of which may be lowered into or raised from the pan by a hand lever. In the illustration, the plough is seen in its normal position, level with the top of the pan's rim. When the pan is ready for emptying, the point is let down and the plough throws the material over the rim, clear of the pan, and on to the molding table, the truck or into the mud bucket, as the case may be.

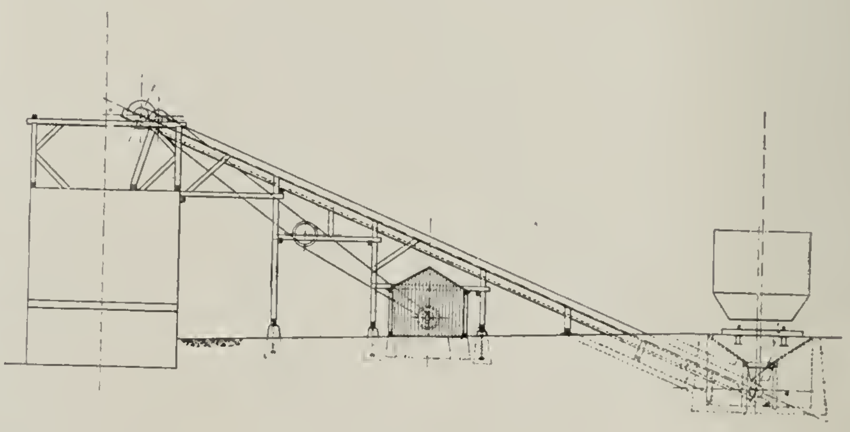
The pan is emptied from 30 to 60 seconds, depending upon the character of the material. This quick and thorough emptying insures an absolutely uniform grade and temper. No labor is required, save that of lowering the point of the plow, and raising it when the pan is empty. No extra power is needed, yet, as has been stated, it is saving one-third of the power that would be needed, if the pan were operated without the Wynn Patent Emptier. It is simple, and in its simplicity lies its effectiveness, its ease of manipulation and its great wearing qualities, amounting to practical indestructibility.



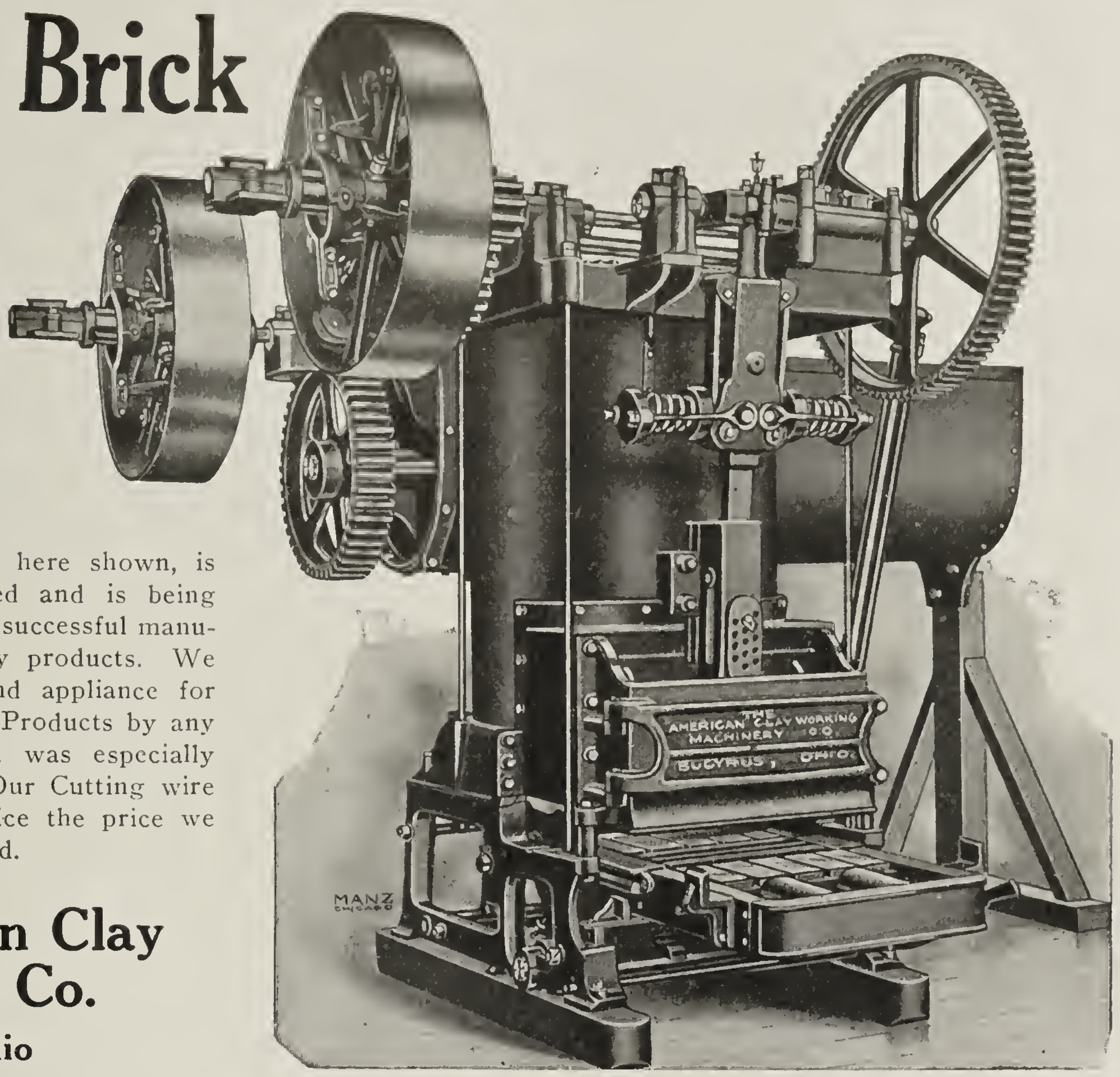
This attachment is made and sold only by the Clearfield Machine Shops, of Clearfield, Pa. They are protected by broad patents against the manufacture, sale or use of this, or infringing devices for automatically removing clay, sand or other materials from wet or dry pans. This point is made with considerable emphasis by the Clearfield people, as they believe the Wynn patent is a valuable one, and that the device is of extreme importance to every brickmaker who has any idea of economical manufacturing methods.

Champion Coal Handling Plant.

The Champion Coal Handling Plant as shown in the illustration, consists of an endless belt conveyor of special design, together with the necessary shafts and pulleys for driving same. The width of the belt depends upon the amount of coal it is desired to handle. With this apparatus a hopper bottom car of 100,000 lbs. capacity of run-of-mine coal can be unloaded in from 23 to 25 minutes with but one man at the car. This coal handling plant is the same as is used by all railroads for handling coal in coal storage plants. It will save its cost in a very short time. The Toronto Fire Clay Co., in their works at Empire, Ohio, and also in their works at Toronto, Ohio, are recent purchasers of these plants. The installation is made according to the conditions that may exist. The manufacturers, The Good Road Machinery Co., Kennett Square, Pa., will be glad to send an engineer to explain each particular location and to decide as to exactly the kind of a plant that is needed.



Soft Mud Brick


THE AMERICAN CLAY WORKING MACHINERY CO.
BUCYRUS, OHIO
MANZ CHICAGO

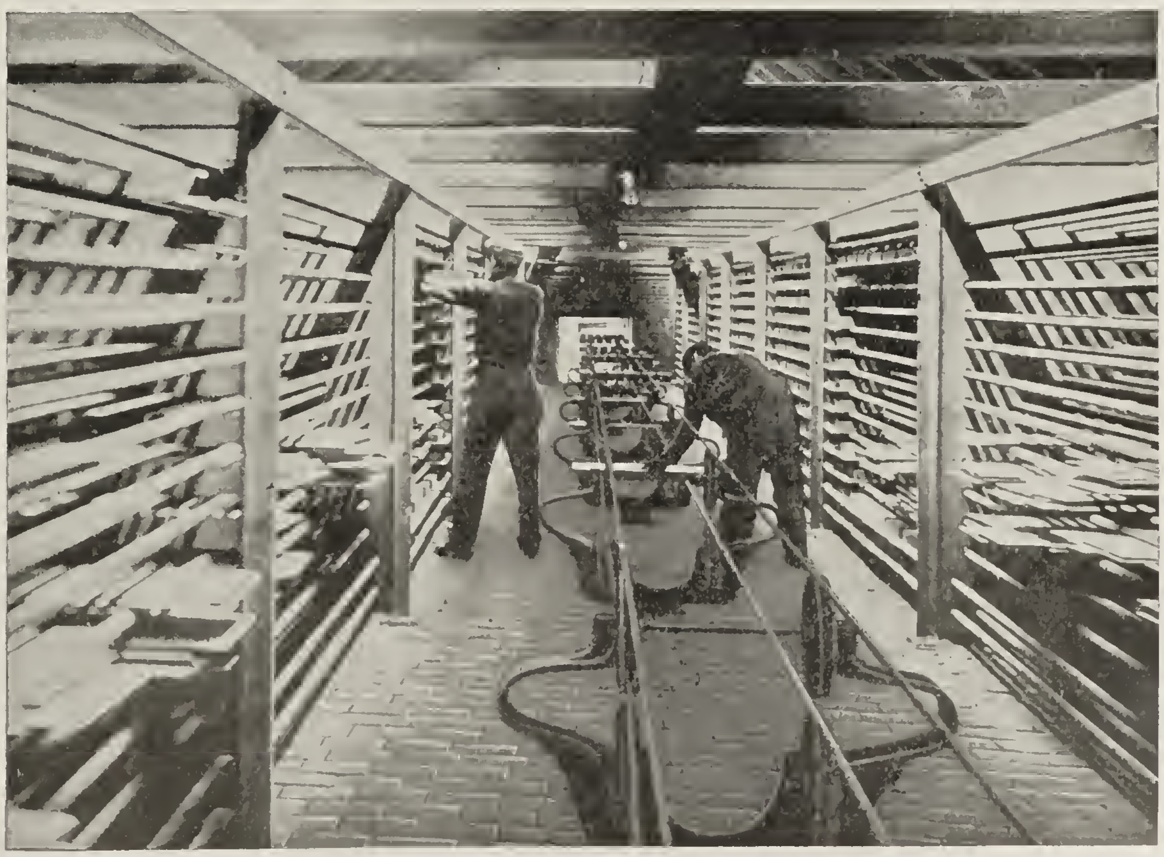
Our line of Soft Mud machinery is complete and has a range in capacity to meet any need. We also manufacture a full line of appliances including molds, mold sanders, crushers, disintegrators, trucks, barrows, conveyors and other requirements for a soft mud yard.

Our Stock Brick Machine, here shown, is exceptionally well constructed and is being operated by some of the most successful manufacturers of this class of clay products. We also build every machine and appliance for making brick and other Clay Products by any process. Our Steam Shovel was especially designed for Clay Pit use. Our Cutting wire would be an economy at twice the price we ask. Correspondence solicited.

The American Clay
Machinery Co.
Bucyrus, Ohio

Pipe Rack Dryer

For drying soft mud brick on pallets we can cut your drying cost to the minimum with our American Pipe Rack Dryer. It will save five or six times the interest on the investment and will give you a better quality of brick with fewer culls. This dryer defies the weather and makes it possible to run the plant rain or shine. It keeps your men with you as they do not lose when the weather is bad. You make prompt deliveries because you can depend on a steady output. In short it's worth a lot more than it costs. Particulars on request.



The American Clay
Machinery Co.
Bucyrus, Ohio

Mr. Brick Manufacturer

One minute to read this advertisement may be worth thousands of dollars to you.

If you have not investigated the Schofield - Burkett Excavator, you have failed to find the most economical method of handling your clay.

The expense of making brick starts in your clay pit; the less expense in getting up your clay, the larger dividends you pay at the end of the season.

Don't fight for higher prices of your product, but fight for lower cost of production. You cannot manufacture your product as low as others unless you have the proper equipment. Cut down your pay roll, and at the same time increase your output.

That is the problem for you to solve.

The SCHOFIELD-BURKETT EXCAVATOR will solve it. It will cut your operating expenses and give you more clay, thereby increasing your output. We guarantee the machine in every way. Let us tell you all about it.

Write for catalog No. 10.

Schofield-Burkett Construction Co.

Desk J

Macon, Georgia

Boss System Installed at Napanee, Ont.

Fig. 1.

An installation that will be of more than passing interest to clayworkers is that recently completed by the John C. Boss Company of Elkhart, Ind., at the plant of the Napanee Brick & Tile Company, at Napanee, Ontario. As shown in the accompanying illustrations, a brick building, with a corrugated iron roof encloses the dryer, which runs from the machine room to the first kiln in the battery.

The clay with which the Napanee company is working is exceedingly tender, and prior to the installation of the Boss system, required three days and nights to bring it to a point where it could be set in the kilns. Even with this comparatively long drying period, a much too great proportion of the ware was checked and otherwise damaged. To this loss was added the expense of a night engineer or fireman, in order that the dryer temperature might be kept at a uniform mark.

In commenting on the new system, the Napanee company informs us that it is now drying in ten hours, and has no damaged ware. No change was made in the clay nor in its method of preparation, the only alteration being in the method of drying. The cost of the installation is fast being offset by the reduced expense and by the larger output of perfect material.

In the illustrations, a view is given, (in Fig. 1) of the exterior of the drier, showing the first kiln in the distance, to the right. An independent stack controls the draft in this kiln, which is operated under the Boss system of burning, a system that utilizes the only commodity other than sunlight, that is free of cost—which is air.

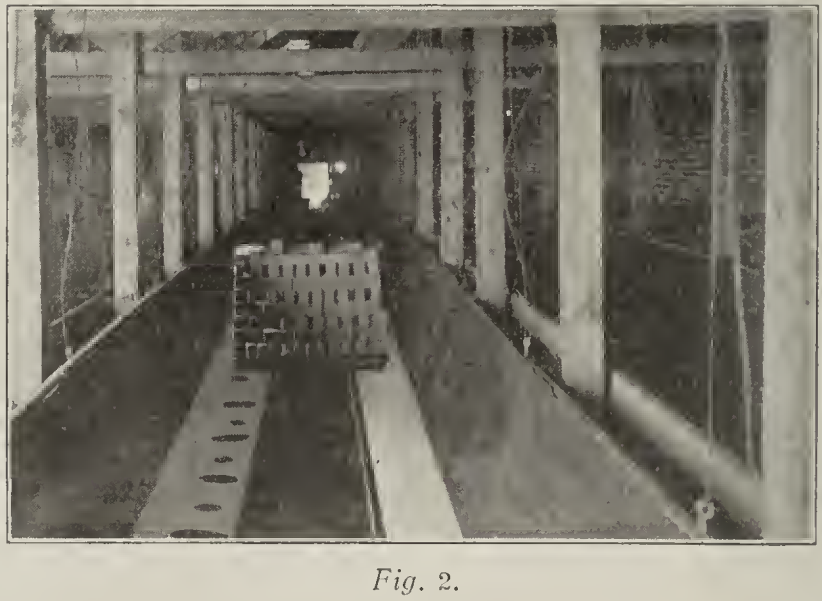


Fig. 2.

Air under pressure is the underlying principle of the Boss system of drying and burning brick. It takes advantage of one of the things which are neither taxed nor sold on a brick yard.

Another illustration, (Fig. 2) shows the interior of the dryer and shows the air and heat ducts, and the curtains that are an important part of the system. In this picture will be seen the brick set in place, the dryer car having been removed. The apparatus for lifting the curtains that make each tunnel an individual dryer are also shown.

The car is shown in Fig. 3, with the transfer car in the foreground. By this system the brick are set in the dryer as fast as they come from the machine room. This in no way affects the adjoining tunnels, which, being curtained off, are independent of the tunnel shown. When the tunnel is filled, the drying is begun, the only heat necessary being that of the waste heat from the kilns, or the exhaust steam from the brick machinery.

White Trucks will Reduce Your Costs and Increase Your Profits

OF COURSE you are interested in means that will reduce your cost of doing business. Such results mean increased profits and give you an advantage in competition. White Trucks will reduce your hauling expense which you know is a big item in your costs. For example:

A White 5-ton Power Dumping Truck owned by the Akron Brick and Tile Company is actually earning $250 to $300 per month, figuring the work it performs at the regular cost of doing it with teams.

The Montowese Brick Co., New Haven, Conn., say: "Our White 5-ton truck does the work of three teams by our figures, at less expense."

Can you afford to overlook such an opportunity for saving in your business?

White Power Dumping Trucks

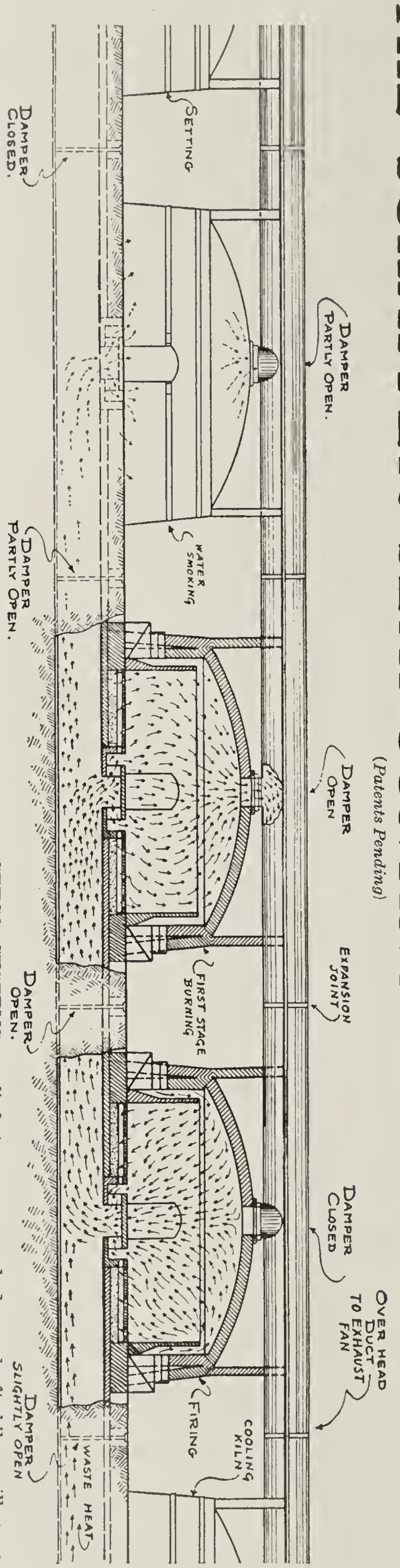
White Power Dumping Trucks are especially efficient for handling common brick, fireproofing, and similar materials which can be unloaded in this manner.

The White dumping mechanism is simple, swift in operation, is not cumbersome, elevates to a 47 degree angle which insures a perfect discharge of the most obstinate materials and, the complete dumping operation is performed in 30 seconds.

An investigation of these trucks will convince you that their use will not only provide the utmost "hauling" efficiency but will promote economy as well.

Send for Catalog

THE WHITE COMPANY
Manufacturers of Gasoline Motor Cars, Motor Trucks and Taxicabs
CLEVELAND, OHIO



THE SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

(Patents Pending)

The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

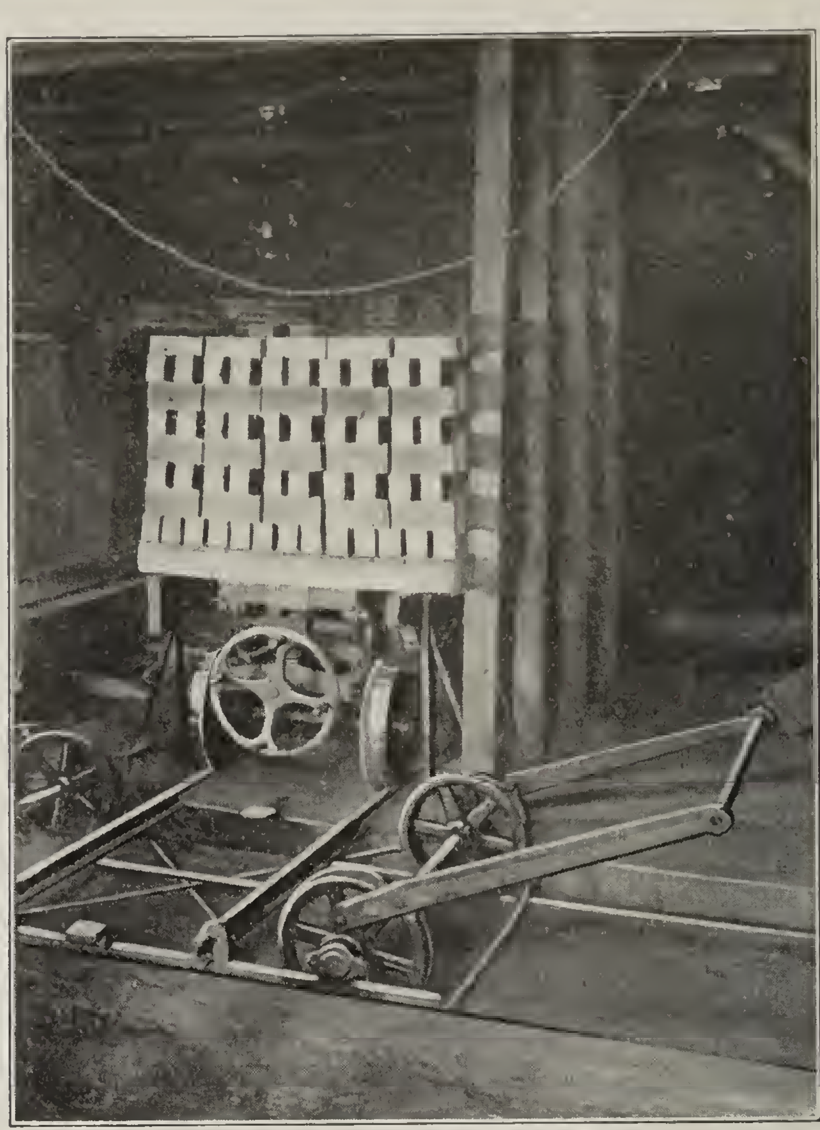


Fig. 3.

Absolutely no live steam is needed, no auxiliary heat supply. No extra night force and no superintendence, save what can be given in the ordinary routine of the day's work.

Truly this is a labor and money saver. The Napanee Brick & Tile Co. is to be congratulated on the forethought that led to its installation.

As to the Fuel Waste.

So much has been said about fuel waste, that it would seem but reasonable that every plant owner would consider fuel economy the most vital study of his manufacturing problem. Within the past few years, an ever increasing amount of attention has been paid to burning methods and to this, in part, is ascribed the fact that the fuel consumption has not been even more of a menace to plant prosperity than it now is. Many plants, however, have lagged behind. Many brickmakers and workers in other forms of burned clay have been content to wonder how their competitors have been able to sell cheaply and still keep out of financial trouble, never considering the fact that the competitor is, in all probability, cutting his costs and so accumulating profits. These wondering, but inactive plant owners are still using old-fashioned dumping grates. Did they but stand in front of the fire-holes when the kilns were being coaled, or at the boilers when the fires were being primed and let some of the wondering work along the lines of astonishment at their own failure to stop the waste that comes from the use of these antiquated devices, they might realize where a part, at least, of the profits they hoped to make are going. With the advent of the Martin Non-Dumping, Rocking Grates, a means of stopping fuel waste was given the clayworker. Adjustable to every grade of coal, it enables the clayworker to use the lower and cheaper grades, and assures him of his coal supply. When labor troubles in coal mines shuts off the supply of one grade of coal, another is always available. In times of stress, the mines are hungry for orders for "slack" even when they have no lump coal to ship. The lasting quality of Martin Grates is attested by the fact that a record of fourteen years shows that they last from six to eight times longer than common grates. The efficiency of Martin Grates is attested by the fact that such concerns as Rathbone, Sard & Co., the National Stove Works and the Champion Steel Range Company all manufacture the grates that they send out with their own stoves, yet use Martin Grates for their own boilers. Many other concerns, like the American Steel & Wire Company and the International Harvester Company, with facilities for making grates of ordinary type at a minimum cost, use Martin Grates exclusively, the fuel saving features and the long life of the Martin Grates making them more economical than any that these great companies can themselves make

BRICK and CLAY RECORD

Brick Established 1894

Clay Record Established 1891

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The Editor's Corner

A Department Wherein is Set Apart Comment
and Opinions on Some of the Graver Problems
Confronting the Clayworker and Co-Laborers

DURING the first week in March, the National Brick Manufacturers' Association will hold its Twenty-eighth Annual Convention. Whether or not it will go down in the records of claycrafting as the best dividend paying convention in twenty-seven years, depends upon those who have made the burning of clay their lifework.

A subtle charm attaches itself to the very name of the chosen city—historic New Orleans. We learned of it in school, where it shared the glory of Bunker Hill and Valley Forge. We came to think of it, as we grew to riper years, as the city of the Carnival and the Mardi Gras, and as such it has appealed to the grown-up-boy spirit that lies latent in us all.

We know of it now as a city of commercial greatness, awaiting the power and wealth it will reap in full measure, at the completion of the titanic work at Panama.

In March, when Winter, with poetic license, will still be lingering "in the lap of Spring," the thought of the balmy Southland, the shedding of heavy clothes and the getting back under a straw hat, will be alluring. The hospitality of New Orleans, which is a tradition, will beckon to us. The thought of grasping the hands of old cronies amid new scenes will be as a magnet to draw us away from fancied responsibilities, that we may once more be Delegates to the GREAT CONGRESS OF BRICK.

The time of starting is less than six weeks away—none too far to begin preparations for the going. Special trains are being chartered for your comfort and enjoyment, elaborate plans are being laid for your entertainment. The fact that you are a Brother-in-Clay opens to you a world of good fun and good fellowship on a stage that has been set for innocent frivolity for nearly a hundred years.

From the day that the announcement of the time and place of this convention was made, committees have been at work planning your pleasure. Arrangements have been made for special rates, special accommodations, special attractions—you have been recognized as Ministers Plenipotentiary and Envoys Extraordinary from the court of old KING CLAY to the court of young KING CARNIVAL.

Will you do your share of the planning with them, by putting your house in order NOW, so that, when the time for starting comes, no shadow of regret will be cast upon the scene by your being absent? You have had a hard, a strenuous year and you owe yourself a good time. You also have a debt to pay to those who are working to make this convention a record-breaker.

Pay up! The good it will do you will only be equaled by the good it will do those with whom you will meet when the CLANS OF CLAY assemble to make their ANNUAL PILGRIMAGE.

BUT it is not, altogether, a pleasure trip. A solemn duty lies before the brickmakers who will assemble among the palms and breathe the semi-tropical air of the old Creole city.

According to government reports, the production of common brick in this country was, in 1910, 9,221,517,000; in 1911, 8,475,277,000; in 1912, 8,555,238,000. In 1911, the production was SEVEN HUNDRED AND FORTY-SIX MILLIONS less than in 1910 and in 1912, while it gained on 1911, it was still SIX HUNDRED AND SIXTY-SIX MILLIONS less than the 1910 record. Taking $6.00 as the average price, this loss represents a production worth more than EIGHT MILLION DOLLARS in two years.

Common brick should be the predominating influence at New Orleans. The fledgelings, face, fire and paving brick have started housekeeping for themselves. The FATHER OF THEM ALL—common brick—stands unfettered, undistracted, ready to give battle to the interests that have plucked EIGHT MILLION DOLLARS from him, in two years.

We all know how it has been done—done in the face of an unpredecented industrial activity and a NATIONAL AWAKENING to the menace of the fire-trap.

His foes have carried banners emblazoned with the magic words SOLIDARITY and PUBLICITY.

At New Orleans, the solidarity of the common brick interest may be MADE MANIFEST.

At New Orleans, the BUILDING BRICK ASSOCIATION OF AMERICA SHOULD BE RESUSCITATED!

Born of the National Brick Manufacturers' Association, it should be welcomed home and invited to partake of the Fatted Calf of a generous financial allowance. Its body nurtured with a golden flood—its spirit enthused with the noble purpose of getting back that EIGHT MILLION DOLLARS, with accrued interest, it will be the Angel with the Flaming Sword to drive Frame and Concrete from out the Paradise of the Brickmaker.

Go to New Orleans. Say to yourself that you will "take in the sights" and, perhaps, "run down to the Panama Canal." But go with the thought that you will do your part in BRINGING BRICK BACK TO ITS OWN, by devising a means of telling the story of brick so well, so loudly, so convincingly, that the ebb tide will be turned and that you, with your fellow clayworkers, will ride to fortune on the crest of the incoming wave.

In homely parlance—GET TOGETHER and ADVERTISE!

IN taking inventory, the last day of the old year, did you stop when the last hack was counted and the last footing proved up? Or did you go back of the visible assets and ponder on those less patent? Did you ask yourself if your plant had made a better product than ever before or made it for less money?

Did you ask yourself if the management was better? Did you find anything, or many things that SHOULD have been done, BUT WERE NOT?

Early in life we all make a contract with society. In it, we agree to "make good." Society, in turn, agrees to give us a certain share in the world's riches, if we abide by the terms of the contract.

And every contract has a TIME LIMIT.

At seventeen, progress looms big and the time limit is written in invisible ink.

At twenty-seven, the pace is set and, if we be worth our salt, we have a strangle-hold on the contract and take something on account from the PAYMASTER.

At thirty-seven, we see other contractors building on the heights that are within our horizon.

At forty-seven we take a long look at the contract and try to decipher the figures that spell the TIME LIMIT.

We agreed to "make good," not knowing that it meant MAKING GOOD until the end of the term. And "making good" in the light of that early hopefulness, meant DOING A LITTLE BETTER THAN THE OTHER FELLOW.

A COMPARATIVE STRANGER to Clayworkers made himself heard at French Lick, Ind., at the conventions of the American Face Brick Association and the Face Brick Dealers' Association. He worked with a will, and spoke with emphasis at Cleveland, when the National Paving Brick Manufacturers held their school for city and county engineers. He was the principal speaker at Des Moines, Iowa, when the Iowa Clay Manufacturers went on record for the Open Price Policy. He was Guest of Honor when the Refractories' Manufacturers' Association met in Pittsburgh, a few weeks since. His is the Voice crying in the Wilderness. His name is REAL CO-OPERATION.

ALTHOUGH honored by long usage, the word "front" as applied to face-brick, is a misnomer. It comes down to us from a day when people were content to use "pressed" brick in the front of their buildings, with common brick showing at sides and rear, although the builder of a log hut did not use finished timber on the front of his home, and the carpenter-builder of a frame house used clapboards on all four sides, painting them to a uniform color.

Today, however, with a better brick architecture, we "face" the walls on all four sides of our houses, unless we know that a closely adjoining building will, in course of time, hide the side walls from view.

It is useless to contend that "front" and "face" mean the same thing. You speak of the front of your house—not of its face. Why then, perpetuate the day of make-believe in brick, by dedicating finely finished material to less than one-fourth of the outside of the structure?

The Trade Paper—The Relationship of Editor to Subscriber

By Elbert Hubbard

FRA ELBERTUS, THE ROYCROFTER FROM EAST AURORA, PHILOSOPHIZES FOR THE BENEFIT OF "BRICK AND CLAY RECORD" READERS ∴ ∴ ∴

> *"No trade paper could exist very long, except it merits the confidence of its subscribers. The relationship between editor and subscriber is essentially that of mutuality, reciprocity and co-operation."*

THE only excuse for the existence of a trade paper is its ability to be of service to the subscriber in his business. No matter how strong a man is, he needs help. Alone, a man is only a leaf in the storm. We are bound up in a common bond of brotherhood, and only as we recognize and respect this brotherhood are we able to get out of our shells.

Success in business turns on knowing what other people in the same line of business are doing. We grow by elimination—we have to know everything that will not work. We also have to know everything that is a success in our particular line of business. The Trade Paper is a sort of central station where ten thousand wires meet. The editor of a trade paper has to be a deal more accurate than the editor of a regular newspaper.

The news that a trade paper supplies must be authentic.

The sensational, the emotional, and all accounts of suicides, seductions, assassinations, conflagrations, and embezzlements are safely omitted from the columns of a trade paper.

These things do not make the world go round. They are negations.

What we often call news in the newspapers is bad news.

Let accident or misfortune come to a man or his business, and the wires flash the news around the world. But if he makes an invention, discovers a new principle, conceives a big and generous idea and evolves a success, the probabilities are, that the newspapers will say little about it.

The editor of a trade paper, however, picks up every successful venture along his own particular line of business and gives it out to his subscribers.

The trade paper means uplift, courage, inspiration, good-will.

It adds to the well-being of the subscriber, gives him a new point of view, prevents nostalgia, makes for fellowship, and gives a man a feeling that he is no mere interloper between earth and sky, an alien in a foreign country.

The trade paper makes the subscriber feel at home.

It puts him in touch with the best that is being said and done in his particular line of business.

Your business is the most important thing to you in the world. It not only supplies you a living, but it keeps you out of mischief. Your business is the thing that keeps you busy, that gets you up in the morning, sends you to the store, shop, factory or office; fills your working hours and your day-dreams and night-dreams, as well.

We are what we are on account of our activities.

This idea is worked out at great length in that wonderful book, "Buckle's History of

Civilization." This book was written seventy-five years ago, but it rings as true to-day as when it was first published.

Yet Buckle never wrote his History of Civilization—he died at thirty-seven, after having written the preface.

In this preface he lays down the propositions that he intends to prove, and these propositions we recognize to-day as truisms. The main proposition of Thomas Henry Buckle was that a man's business is the most important thing to him in life. While he is impressing himself on his business, his business is making him what he is.

So the finer and better your business is, the bigger and better your character.

How any man can hope to do business successfully without the assistance of the trade paper, I do not know.

The trade paper is the one thing that binds you to your fellows who are working along similar lines.

The trade paper is a school, an inspiration. The business of the trade paper is not only to give important happenings, but it is to cement human hearts.

We are strong only as we stand together; we are weak as we are alone. And let any man once feel that he is alone, soon his reason reels and his mind totters.

No trade paper could exist very long, except it merits the confidence of its subscribers. The relationship between editor and subscriber is essentially that of mutuality, reciprocity, and co-operation.

Practically, the editor of a trade paper is in partnership with his subscribers—he has to know their business that he might intelligently write about it.

He must have the interest of this business absolutely at heart.

Every possible betterment he must suggest and explain.

If there are broken bridges and a bad line of mud and sand ahead, it is his business to give due warning.

He advises, suggests, admonishes, warns, and thus does he strengthen, assist, and help in the onward and upward march.

Business to-day is a struggle for existence. You can't hope to succeed unless you are right in line with the best that the world is doing and thinking.

Any man who says, "This is good enough, let 'er go, who cares," is putting the skids under his prospects.

The trade paper is pumping power into the business of every subscriber.

Just here I think a little expressed gratitude on the part of the subscriber towards the editor of the trade paper is not out of order.

If you find a good thing in your trade paper, just write to the old man and tell him so.

When your trade paper comes open it before you do any other publication; it is more vital to you; it means more.

Take the wrapper off at once and read it from cover to cover, advertisements and all, for in the advertisements of trade papers you will also find a deal of concentrated wisdom.

The whole business is built up on brotherhood, and when you write the editor of your trade paper just remember this: that you are practically writing to yourself, for the man who reads your letter has your interests at heart, and he is going to protect you and benefit you in every way possible; otherwise, he could not possibly exist at all.

Not only do I advise a man to read his trade paper, but I suggest that he pay for it enthusiastically and promptly. The very fact that one has thus paid his subscription will help him to appreciate the publication.

So all you subscribers to trade papers, just cultivate a little of that beautiful thing called gratitude, and while gratitude may be a lively sense of satisfaction on account of favors about to be received, yet the genuine article is a sense of gratitude for favors already rendered.

Out of every issue of your trade paper you should get at least one big idea. And this you should make a note of. Write it out briefly and put it in a pigeon hole where you can put your hands on it. The very act of writing it will help fix it in your memory.

So it's all together all of the time.

Co-operation is the keynote of success, and when you read and absorb your trade paper you co-operate with the ideas which help your business.

(Copyright, 1914, Kovnat Adv. Service Chicago)

Are you getting the benefit of the "Question and Answer" and the "Superintendent" departments? Turn to them today and profit by the experience of others.

A Man That Says Little But Does Much

BEING A BRIEF SKETCH OF A CLAYWORKER WHO INSISTS ON NOT TALKING OFTEN AND MAKING SURE HIS WORDS CARRY WEIGHT WHEN HE DOES

C. C. Barr

President, The Barr Clay Company, Streator, Ill.

HAVE YOU ever ridden in a big, expensive foreign car—a Mercedes or a Fiat—and noticed the almost silent purr of the engine? Combining immense strength and reserve power with a mechanical accuracy almost unbelievable, efficiency with a seeming self-obliteration that finds its counterpart in but few men?

Have you ever sat in committee conference with C. C. Barr, the treasurer of the National Paving Brick Manufacturers' Association? If you have, the similitude may have forced itself upon you.

Originally—that is, before he became a brick manufacturer—Mr. Barr was a contractor. The work he was concerned in was of sextuple magnitude. He was the almost successful bidder on the first of New York's subways—an engineering feat unequaled in the country's history until the Panama canal overshadowed everything in that line that had gone before it.

In order, it is said, to be assured a proper supply of brick for one of his contracts, he bought out a brick plant. The lure of burned clay proved strong, and he staid in the brick business, applying the high calibre guns of his physical and mental activity, to the demolition of antiquated methods and inefficient processes, until he brought his plant at Streator, Illinois, to a point where it is looked upon today as one of the best equipped plants in this country.

It is stated that Mr. Barr says very little on any subject. It is also currently reported that his conversation is prolific on all subjects other than two, when compared to those two subjects—they being himself and what he has done. The taciturn attitude he takes on these is rivaled by that he assumes on another very important matter—what he is going to do.

Yet he is a tower of strength in committee, a wise counselor in all matters that pertain to the public welfare and the progress of his fellow workers in clay. Here, it is said, he does speak, now and again, and like all men who speak seldom and little, he always has something to say—something that commands the attention and forces the action of those with whom he is in consultation. It is again the finely tooled mental engine that takes steep grades at full speed, skims over bad business roads with no seeming effort—and without an unnecessary sound.

Fortunate in its choice of men to carry on the work to which it is dedicated, wise in its selection of officials, the National Paving Brick Manufacturers' Association has much to give thanks for, at this, the opening of the banner year in paving brick records. And not the least of these thank offerings should be given, to memorize the fact that C. C. Barr has preserved so eloquent a silence all these years, and so had an opportunity of absorbing considerable information. And then, that thanksgiving being over and done, that he has ever shown a willingness to impart this information, howsoe'er it be in monosyllables, for the benefit of those with whom he is associated.

*Portrait on Front Cover.

One of the United Fruit Company's Steamers at the Levee in New Orleans.

A Glimpse of the Avenue of Palms.

New Orleans Ideal American Winter Resort

Sunny Skies and Balmy Air Will Greet Brickmakers in March

To the ordinary tourist, New Orleans offers a world of attractions. To the clayworker, who is making preparations to attend the Twenty-eighth Annual Convention of the National Brick Manufacturers Association, a host of additional inducements are offered, in recognition of his being one of the Great Clay Family, who will hold a Congress among the palms of the Crescent City.

"See America First" is now a familiar slogan. What better way is there, in which the seeing may be begun, than to "hike" for the Southland when the rivers and lakes of the North are chained with ice and the land asleep, under a snowy blanket?

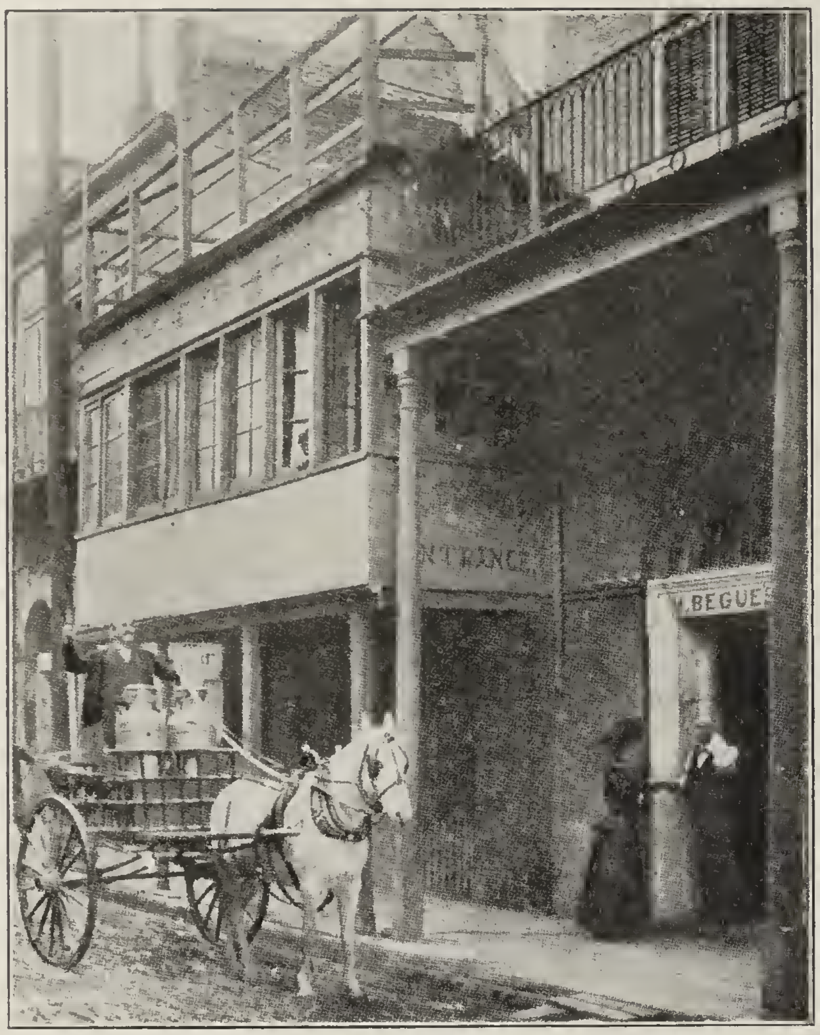
GIVING, as it does, an excuse for going South at a season when the great brickmaking centers of the North, East, Middle West and West, are usually snow-bound, the coming convention of the National Brick Manufacturers' Association will be a welcome break in the routine of the trade. Leaving ice and snow, sleet and slush behind, they will enter upon a day-and-a-night trip from Chicago (or a shorter trip from points farther South) and come to a land of palms and Summer raiment.

The "trip"—so far as it takes on some of the atmosphere of holidaying—will begin when the train leaves Chicago. Prior to this, parties from the shores of the Atlantic, the Hudson, the Potomac, the Ohio and the Lakes, will journey together, their faces turned to the West and South. From the gas belt of Kansas, the fertile fields of Iowa and all that country that lies in the valley of the Mississippi, winging like the birds in early Autumn, brick men will be going due South. But to those whose homes are so located that they can come to Chicago first, the full measure of fun and frolic is assured.

Chicago appreciates the honor paid her in the National Brick Manufacturers' Association's giving her two conventions in succession. With characteristic generosity, she comes forward to "boost" another convention, held nearly a thousand miles from her city limits. Her "Clay Club" agrees to "stock" a car in the Chaldean special, and to provide enough entertainment for the brick men who ride with them, so that they will wish the trip were longer by half than the railway timetables show. And "stocking" a car in Chicago has nothing whatever to do with the Stock Yards.

It is said that New Orleans must be taken in the proper spirit, and not set up in mind to be compared with any other ancient or modern city in the country. The effect of the "Chaldean Special" will be to impart that atmosphere of making holiday so necessary to the full enjoyment of the peculiarities of the Creole City.

Those who go a week earlier, and see the Mardi Gras



Madame Begue's Famous Breakfast House

will meet the boys as they step from the "Chaldean Special" and, in the exchange of experiences, will wonder which had the better time.

New Orleans, however, offers enough attractions to the tourist, to make both Carnival and special train superfluous. To the man from the inland country, the seafood will appeal strongly—the oyster counters that are almost as prevalent as mules and negroes—and these are multitudinous—where oysters as big as a man's hand are opened before your eyes and sold at 15c the dozen. It is said that no other city in the country has so many good places to eat—so many good things to eat—or where people understand the gentle gastronomic arts, as do the people of this historic city. Many of the larger cities of our country have famous dining places, where some specially well prepared dish, or music, or "the crowd" is interesting. What city but New Orleans has its Madam Begue's devoted to breakfasts?

The boiling of the great melting pot of America, is fast wiping out the so-called "foreign quarters" of our sea-ports. In the renewed commercial prosperity of New Orleans, the hand of progress already threatens the picturesque French Quarter and old landmarks are beginning to disappear. Not enough, as yet, to make the tourist of today feel that he has been defrauded, but sufficient to make him know that he comes none too early—that much of the charm of historic associations, closely interwoven as they are with a distinctly foreign civilization, are destined to disappear.

To those who come to New Orleans from the Great Lakes, the Mississippi or the Ohio, the peculiar nativity of the city near the Gulf will have some interest. It was founded in 1718 and for more than eighty years developed under the dominate influence of the Spanish and French. In 1803, when the Louisiana purchase was consummated, this city came to take its place with those that had grown under Anglo-Saxon influences—a dark-haired, flashing-eyed, fun-loving little sister to the cities that had been built by Puritan stock.

True it is, that in the years between 1718 and 1803, the city, under the conditions of Colonial life, took to itself usages, customs, and even a *patois* of its own, leaving an impress that is still noticeable, after more than a century has passed. It is this quaint "foreigness"—individual, different from anything anywhere else—that makes the French Quarter of New Orleans the Mecca of tourists, not only from this country, but from the whole world.

No stranger visiting New Orleans fails to give some time to the cemeteries, for it must be known that in that city, the dead are laid to rest above ground; in one (St. Louis) a wall, built of brick brought from France, faces the tombs, which are sealed with richly carved tablets, that give annals of the illustrious dead identified with the founding and growth of the city. In the illustration is shown two of these, side by side, and below (and to the left of) the bronze grating, one recites the name and fame and age of the first man to plant cotton in Louisiana, the other of the man who made the transfer of Louisiana to the United States. In another part of this cemetery is seen the tablet over the tomb of Wong Goon, *Grand Secretary* of Free and Accepted Masons. That much of the inscription is easily deciphered—the balance is equally well preserved, but is in Chinese characters.

In the cemetery that adjoins St. Roch chapel (the Creole Catholic Church) the tombs are more ornate, as may be seen in the illustration. The law of the city compels this above ground burial for at least two years after death. Very shortly after that, another disposition is made of the bodies and the tablets do not carry the familiar "Here Lies"—for nothing but the memory and the carved memorial remain.

The Chapel, built in the old mediaeval style of architecture, and now beautifully covered with ivy, is both the most quaint and the most interesting, from a certain point of view, of all the ecclesiastic buildings of the city. The latter, because of its being a shrine before which the suffering and afflicted place their offerings and breathe their prayers—a shrine which has acquired the prestige of the miraculous, and before which are to be seen an extensive array of thank offerings and scores of burning tapers placed there by benefited and petitioning pilgrims.

Memorial Tablet to Wong Goon, a Chinese Grand Secretary of Masons.

St. Roch's Memorial Chapel, One of the Interesting Points in New Orleans.

Brick Wall in St. Louis' Cemetery in New Orleans. The Brick was Imported from France.

The floor of the chapel is of white marble, and the side walls contain tiers of burial vaults over which are beautiful stained glass windows to patron saints. Above the altar is the shrine of St. Roch, the patron saint of health, represented as a cavalier, with his faithful dog by his side.

A legend told in connection with the history of St. Roch's chapel is that, during an epidemic in the city, a devout priest made a vow to build it if his parishioners should be spared from the scourge, he and his parish at the same time uniting in a novena, or nine days' prayer, to St. Roch for relief. Although the rest of the city suffered heavily, none of this good priest's parishioners died. Consequently the chapel was built and the place called "Campo Sancto" or "Place of Health."

New Orleans is, and always has been, the metropolis of the South. It is destined to be one of the greatest cities in America, for many reasons, among them being the fact that it is many hundreds of miles nearer the Panama canal than are the principal Atlantic ports. It already ranks as the third largest export port in the United states and the fourth in imports. It is the largest cotton market and rice market in existence. At the wharves, a sea of cotton bales extends almost as far as the eye can reach. It has the largest sugar refinery in the world. To its levees come the steamers that carry the products of the American tropics, the banana trade alone being of stupendous magnitude.

In the illustration, one of the United Fruit Company's steamers is shown, and the framework of the elevator that takes the fruit from the hold is seen amidships. The white, disk-like "ornaments" that decorate the hawsers are compelled by government law, to prevent the ingress or egress of rats—now known as the most potent plague and disease carriers in the animal kingdom.

Travel broadens. "See America first" is written into our inner consciousness. What better chance of seeing a part of the country that is unique, picturesque and interesting, could be afforded than by this combined pleasure and business trip to your own convention? What better time than Winter, when, to New Orleans' other attractive features, will be added the charms of a balmy air, the fragrance of roses, the notes of song birds and the cheery influences of bright, sunny skies? And don't forget to get out that old Panama, regretfully laid away in September. It will be *de rigeour* in New Orleans, the first week in March.

Chaldeans Meet N. B. M. A. in New Orleans

AMONG the affiliated organizations that will meet with the National Brick Manufacturers' Association March 2-5 at New Orleans is the Ancient Order of Chaldeans, the secret order of clayworkers which was launched at the time of the Twenty-Seventh Annual Convention of the parent body in Chicago last March.

A special train bearing the officers of the Supreme Temple and members of Chicago Temple No. 1, will leave Chicago Feb. 28 and will blaze a trail through the clayfields of the South to the metropolis of the Mississippi Delta. Members of the organization from points in the territory of Chicago will board the train at Chicago. Other members will be picked up at various points along the route and it is expected that several hundred Chaldeans and their friends will be aboard the special and help the cause of the clayworkers in the boosting program that is being prepared for the trip.

It is probable that another special train will be started from Cincinnati the same day the Chicago special leaves Chicago. This would meet the big special at Louisville or some other convenient point along the route and take on the Chaldeans and their friends from Indiana, Ohio and other points east.

The Chaldean special will be one of the best appointed trains that ever went over a Southern road. It will consist of a twelve-section Pullman train, with buffet, diner and observation cars, and every service that will give comfort and afford a convenience to the travelers will be secured.

Large streamers or banners will be stretched on both sides of the train proclaiming to the villages, towns and cities through which the special will pass that the flyer is conveying Chaldeans and their clay-working friends to the National Brickmakers' convention at New Orleans.

No other extra charge will be made for the accommodations on the special—the reduced rates applying on all roads being given the Chaldeans and their friends. Tickets, also, may be bought by persons living in any section of the country to be routed by the Chaldean special, picking up the train at any convenient point, no extra charge being made for the accommodation. In other words, a Chaldean or

A Mile of Cotton on the New Orleans Levee.

The White City of the Dead.

clayworker, who wishes to join the party, and who lives at some point like Detroit, Buffalo, St. Louis, Minneapolis or other city, may be routed by way of the Chaldean special, picking it up at the first convenient point and the cost of his ticket will be the same as if he went direct from his home city to New Orleans.

While the special primarily is for the Chaldeans, any clayworker may enjoy the hospitality of the Order without any expense, other than his railroad fare.

The Chicago Clay Club, which was organized two years ago at the first session of the N. B. M. A. in Chicago for the purpose of entertaining the visitors, has a surplus from last year's entertainment fund and will use this in paying the expense of entertaining the clayworkers on the Chaldean train to New Orleans.

No definite plans have been made for the Chaldeans while in New Orleans, but a meeting of the Supreme Temple officers will be held in a few days and the program completed. Following this, Supreme Keeper of the Tablets Iverson C. Wells, 445 Plymouth Court, Chicago, will issue a circular to all members, telling them of the plans.

It is proposed, however, that this year's meeting, which is the second annual one of the Order, will eclipse the previous event in affording entertainment and amusement for the clayworkers. A suitable lodge hall will be engaged and beside the initiation work under the revised ritual, there will be a banquet, a cabaret show and the annual championship boxing contest. Tentative plans suggested promise some surprises in the way of entertainment and few clayworkers, if they knew in advance what was planned for them, would want to miss the big event.

The new buttons of the order have been received from the jeweler and are ready for distribution. They are solid gold and have the sacred symbol of the order—the Man-headed, winged bull prominently displayed on a field of blue. The mystic letters, "F. F. F.," and the name of the order are also shown. These buttons may be had from the supreme keeper of the tablets on the payment of $1.50.

Ceramic Society to Meet in Wheeling

THERE is every indication that the next annual meeting of the American Ceramic Society, which will be held Feb. 24-27, at Wheeling, W. Va., will be one of the best attended sessions in the history of this organization. Secretary Edward Orton, Jr., is laboring hard to arrange an instructive program and it is probable that the quality of papers will be even better than previous sessions.

Official announcement of the meeting was made the past week in a circular sent out by Secretary Orton. It follows:

The Sixteenth Annual Meeting of the American Ceramic Society will occur in Wheeling, West Va., beginning on Tuesday, Feb. 24, and closing on Thursday, the 26th, or Friday, the 27th. The decision to go to Wheeling was reached by the Board of Trustees, after urgent representations had been made to each of them in favor of New Orleans, for the first week of March. The welcome extended by the Mayor and the Chamber of Commerce of that city and of members of the N. B. M. A. residing in the south was very genuine and hard to refuse, but the Board of Trustees felt that the point was far too distant and outside of the areas where our members reside and outside of the areas of ceramic interest, and therefore reached the decision to remain in territory easily accessible to all. It is certainly much to be hoped that the N. B. M. A. will meet next year at a point where we can also go without sacrifice to the interest of our organization.

Wheeling is a thriving city of 42,000 people, on the Ohio River, about 60 miles southwest of Pittsburgh, located upon the Baltimore & Ohio and Pennsylvania Railway systems. Its hotel accommodations are ample for the needs of the society. It is the center of a very considerable ceramic industry and the home of a number of our members. There are white ware and porcelain factories, brick works, glass works, enameled iron works, steel works and other industries in our own or parallel lines. There seems every reason to assume that a very interesting and profitable session can be held there.

The success of the last meeting at Washington, using the single section plan, probably will have some influence upon the method of conducting the next meeting. Unless the offering of papers should be most unexpectedly large, so as to wholly preclude the possibility of one session handling it all, the single section will be again tried. It has some manifest advantages, and some equally manifest drawbacks, but until the Society itself shows more response to the plan of dividing into sections the Board will not take further steps in that direction.

The call for papers goes out herewith. The very unusual lateness of the distribution of Vol. XV., which has just been received from the printer and distributed within the week, has delayed the call until this time. The change of the Editor's residence from Columbus to New Brighton while the volume was in preparation, followed by his severe illness for a month or more, thoroughly disorganized the printing program, which was up to that time in excellent condition.

The strain upon the Society to produce a good set of new papers in the less than two months between the appearance of Vol. XV., and the next meeting will be distinctly felt, without doubt. However, the situation is a temporary one and one which could not be foreseen, and the loyalty of the members will doubtless enable them to meet this test as they have met others.

The return of the blanks as early as convenient will be appreciated, as the returns arriving from day to day are of use in stimulating other efforts.

The nominating committee, appointed by the President at the last meeting did its work at that time and handed to the Secretary the following ticket: President, Cullen W. Parmelee, New Brunswick; Vice President, Dwight T. Farnham, Seattle, Wash.; Secretary, Edward Orton, Jr., Columbus, O.; Treasurer, Hereford Hope, New Brighton, N. J.; Trustee, George H. Brown, Pittsburgh, Pa.

The two members of the Board of Trustees who hold over are:

Term expiring 1915, H. P. Humphrey, Trenton, N. J.; term expiring 1916, F. W. Walker, Beaver Falls.

Any five active members not in arrears may act as a self-constituted nominating committee, and may present the names of any other nominees whom they may desire to put up. They must secure the assent of any one so nominated. This notice is to call attention to Section V of the Rules. Any additional nomination must be in the Secretary's hands on or before February 1st, 1913.

In addition, the following persons were regularly nominated for Active Membership, and approved by the Board of Trustees at the last Annual Meeting, and will be voted upon, by letter ballot, at the coming meeting in February, viz.:

R. K. Hurah, Instructor in Ceramics, University of Illinois, Urbana, Ill.; Samuel Karzan, Assistant Supt. American Sewer Pipe Co., Jackson, Mich.; Charles H. Kerr, Director Research Dept., Pittsburgh Plate Glass Co., Creighton, Pa. Amos P. Potts, Instructor in Ceramics, Iowa State College, Ames, Iowa.

Volume XV. is just in the hands of the Society. You will find upon studying it, that it upholds the reputation which has been built up by the years of work already done. As to cost, it is somewhat less expensive than Vol. XIV. on various accounts.

The probability is very strong that the next volume will be printed in Columbus, and that the experiment of eastern printing will be abandoned. The workmanship is not enough better to justify the delays and increased cost which has thus far invariably accompanied the process.

The active aid and support of all the members in bringing a large attendance and a good program together at Wheeling is sought by the Board of Trustees. All who have matter in mind which they would like to use are invited by the Secretary to correspond with him at once.

For the Board of Trustees
EDWARD ORTON, JR.,
Secretary.

The appeal made in the above circular is a strong one and should stir up clay workers to the importance of these annual gatherings and draw out a record breaking attendance.

Illinois Association to Discuss Open Price

PROBABLY one of the liveliest sessions of the Illinois Clay Manufacturers' Association will be that of 1914, which is to be held Jan. 22-24, at the Beardsley Hotel, Champaign, Ill. Secretary A. E. Huckins, of Champaign, got an earlier start than usual in preparation and has a number of noted experts on his program, among whom will be Prof. A. V. Bleininger, of the United States Bureau of Standards and Prof. R. T. Stull, dean of the ceramic department, University of Illinois.

One of the many serious and vital problems to be discussed at the convention will be the open-price policy which has met with such success in some of the national organizations of clayworkers. Fuel economy, drying, burning and salesmanship are among some of the other questions to be treated. The program in full follows:

THURSDAY MORNING.

1. Kiln Temperature Measurements, by R. K. Huesh.
2. Advantages & Disadvantages of Continuous Kilns, by John T. Hummert.
3. Performance of Double Deck Driers, by B. S. Radcliffe.

THURSDAY AFTERNOON.

4. Some Causes of Low Ratler Test in Paving Brick, by A. E. Williams.
5. Open Price Policy, by Iverson C. Wells.
6. Fuel Economy, by W. C. Kirkpatrick.
7. Preliminary Report on Test of Coal Measure Shales, by Prof. R. T. Stull.

FRIDAY MORNING.

8. Manufacture of Hollow Ware, by A. E. Williams.
9. Reciprocal Insurance, by T. A. Randell.
10. Present Industrial Tendencies, by F. W. De Wolfe.
11. Influence of Time on Burning, by Prof. A. V. Bleininger.
12. "Organization." What It Can Do for You, by C. D. Ronike

FRIDAY AFTERNOON.

13. Progress Ceramics Dept., by Prof. R. T. Stull.
14. The Ethics of Salesmanship, by F. W. Butterworth.
15. Relations Between Manufacturer and Jobber, by Astrid S. Rosing.
16. Electricity in Clay Plants, by J. F. Geileman.
17. Notes on Repressing Lammations and Lubricating Dies, by Prof. R. T. Stull.

SATURDAY MORNING.

Business Session.

Visit to Ceramic Department, University of Illinois, where the brick plant of this department will be in full operation for your inspection, also various kilns and results obtained shown to you.

The banquet will be held Friday evening at the Hotel Beardsley.

Considerable interest has been manifested in the Association's work the past year and it is expected that this enthusiasm will be responsible for an old-fashioned attendance of Illinois clayworkers.

Wisconsin Association Announces Progress

THE Fourteenth Annual Convention of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee, with headquarters at the Republican House, Jan. 29 and 30, 1914. An excellent program is being prepared for this convention. Prof. Edward Orton, Jr., dean of the College of Engineering of the Ohio State University, will be present and will give two talks on the subjects of burning clays and the method of testing clay wares to determine their usefulness. Professor Orton is a pioneer and a leader in this country in the study of clay products and in the training of young men in the clay-working industries. The program in full follows:

Thursday, Jan. 29.

Convention called to order at 10 a. m.
President's address, John Ringle.
Reports of officers and committees.

Jan. 29—2 p. m.

1. Recent Changes in the Cost of Brick Manufacture, A. W. Hilker, Racine.
2. The Wisconsin Lien Law. F. Vogt, Milwaukee.
3. Industrial Education in Bricklaying in Wisconsin, S. Weidman, Madison.
4. My Experience with Brick Kilns and the Kind of Fuel, J. D. Pratt, Menomonie.

Jan. 30—9 a. m.

5. The Testing of Clays to Determine What Their Uses Are, Prof. Edw. Orton, Jr., Ohio State University, Columbus.
6. The Testing of Drain Tile and Brick, Prof. M. O. Withey, Wisconsin State University, Madison.
7. The Advertising and Selling of Brick, T. E. Dever, Milwaukee

Jan. 30—2 p. m.

8. The Reaction Taking Place in the Burning of Clay Wares. Prof. Edw. Orton, Columbus.
9. Getting the Best Out of Your Business, Iverson C. Wells, Editor "Brick and Clay Record."
10. Reports of Committees and Election of Officers.

The executive committee plans to make the convention the best in the history of the Association.

Canadian National Association Meets at Toronto, January 27-30.

THE next convention of the Canadian National Clay Products' Association is to be held at the King Edward Hotel, Toronto, Jan. 27-30. This was decided at a meeting of the executive committee held on Nov. 14. At this meeting the following entertainment committee was appointed: Chas. Millar, President, Prices, Ltd., Toronto; John S. McCannel, Milton Pressed Brick Co.,; Geo. Alsip, Alsip Brick Co., Fort William; John Berg, Berg Machinery Mfg. Co., Toronto; Frank Elliott, C. W. Raymond Co., Dayton, Ohio; John Walsh, Secretary, 40 Blake street, Toronto; Daniel Lochrie, Toronto; John E. Frid, Hamilton; G. C. Keith, Editor, The Canadian Clay-Worker, Toronto.

Other committees are as follows:

Technical Education—W. McCredie, Chairman; A. L. McCredie, G. M. Raymond, J. S. McCannel, and D. O. McKinnon.

Ways and Means—J. S. McCannel, Chairman; W. J. Packham, Ollman, Geo. Crain, A. Berg and H. E. Hunt.

Tile Publicity—G. W. Moodie, Chairman; Albert Deller, John Miner, Wm. Clark and O. Baird.

The other officers of the club are:

President, Chas. Millar; first vice-president, David Martin, Thamesville, Ont.; second vice-president, George Crain, Beamsville, Ont.; third vice-president, G. W. Moodie, Highgate, Ont.; secretary-treasurer, John Walsh, 40 Blake street, Toronto.

One of the important features of the 1914 convention is to be the question box.

The Northwestern Clay Association.

The Northwestern Clay Association, of which E. H. Cobb, of Minneapolis, Minn., is president, and Axel Anderson, of Minneapolis, is secretary, will meet Jan. 20 at Minneapolis, in the West Hotel. "The Open Price Policy" will be discussed during the session. Editor Wells of this journal delivered a paper on the subject Tuesday.

Western Ontario Association Meets at Chatham, February 4-5.

THE WESTERN Ontario Clayworkers' Association is to meet at Chatham, Ont., Feb. 4-5. This was decided at a meeting of the executive committee held in Ridgetown, Ont., Jan. 1.

A program on live subjects is being prepared and all look forward to a good meeting. Such men as W. McCredie, Lyons, Ont., a member of the committee appointed by the Government, to investigate the question of technical clayworking schools, is to talk on "Technical Education, Its Progress in Ontario and Probable Effect Upon Our Trade."

"The Handling of Clay from Bank to Machine," by Jno. Wardle of Blenheim, is another paper.

Jno. F. Miner of Kingsville is a burner of more than ordinary merit and a good sound fact talker. His subject is, "Burning Clay Goods."

A. W. Hill, Essex., is something of an inventor and improver and has proven himself one of the successfuls. "Machinery, Its Installation and Maintenance," is the paper he is expected to give.

Prof. Creelman of the Guelph Agricultural College, will without doubt give the tile men something good to take home.

G. W. Moody, Highgate, Ont., chairman of C. C. P. M. A. Tile Publicity Committee, will handle the subject of publicity.

B. Broadwell, of Kingsville, has tried out a new departure in marketing brick and has promised to tell about it.

Secretary Alfred Wehlan, of Cairo, is looking up old records and will contribute something on the history of the Association.

Western Pavers Meet January 17.

The Western Paving Brick Manufacturers' Association meets in Kansas City, Mo., January 17, for three days, the sessions to be held in the office of the secretary, George W. Thurston, in the Ridge Building. Several speakers are on the program, among whom is Editor Wells of this journal.

Will P. Blair Gets an Automobile.

Believing that one instrumental in building thousands of miles of flawless road should have means to enjoy good highways to the uttermost, members of the National Paving Brick Manufacturers' Association presented their secretary, Will P. Blair, with an automobile as a Christmas gift. An unusually profitable year, which they attribute to the cumulative effects of Secretary Blair's lifelong propaganda for good construction was the especial occasion for their generosity.

The presentation was made by President Charles J. Deckman of the Association, who referred to Secretary Blair's long service in the cause of brick paving and said that he desired to give him every facility in the efforts in which he is engaged.

An informal gathering of brick men in the offices of the Association Dec. 19 was made the occasion of the gift. The machine has not been selected but the fund for its purchase was turned over in the form of a savings account and its recipient is now sitting up nights studying the difference between a carbureter and a sand template.

It is needless to say that Secretary Blair is all smiles. The following letter received by this journal from him immediately following the presentation is proof convincing of this fact:

> In the midst of this holiday season—a halt in the usual work—talk—advice—a bank credit—Ford—speeding up—Deckman said it was from fifty-five friends concerned—what could I say Much obliged! It all happened in a few minutes, and now after a few days of reflection I find expression of appreciation as difficult. Ifeel it sincerely nevertheless.
>
> The machine will be purchased in due time and we will do our best to co-operate with the aid it furnishes.
>
> In return may I at least extend to you a sincere wish for a Happy and Prosperous New Year.

We believe that every clayworker who knows Will P Blair (and who does not?) will agree with us that he deserves the auto and even more.

CONVENTION DATES.

MEETINGS TO BE HELD.

NATIONAL BRICK MANUFACTURERS' ASSOCIATION, Theodore A. Randall, Secretary, Indianapolis, Ind.—Meets at New Orleans, La., March 2-5, 1914.

ANCIENT ORDER OF CHALDEANS, Iverson C. Wells, Supreme Keeper of the Tablet, 445 Plymouth Court, Chicago.—Meets at New Orleans, La., March 2-5, 1914.

AMERICAN CERAMIC SOCIETY, Edward Orton, Jr., Secretary, Columbus, Ohio.—Meets at Wheeling, W. Va., Feb. 24-27.

WESTERN PAVING BRICK MANUFACTURERS' ASSOCIATION, George W. Thurston, Secretary, 416 Dwight Bldg., Kansas City, Mo.—Meets at Kansas City, Jan. 17, 1914.

EASTERN PAVING BRICK MANUFACTURERS' ASSOCIATION, C. A. Young, Secretary, 807 Abbott Bldg., Pittsburgh, Pa.—Meeting place and date to be announced.

CANADIAN NATIONAL CLAY PRODUCTS ASSOCIATION, John R. Walsh, Secretary, 40 Blake St., Toronto, Canada.—Meets at Toronto, King Edward Hotel, Jan. 27-30, 1914.

REFRACTORIES MANUFACTURERS' ASSOCIATION, John Cavendar, Secretary, 72 W. Adams St., Chicago.—Meets in Pittsburgh, Pa., Feb. 27, 1914.

THE VITRIFIED CLAY INDUSTRY, John L. Rice, Secretary, 1009 Wyandotte Bldg., Columbus, O.—Meeting place and date to be announced.

PACIFIC CLAY PRODUCTS PUBLICITY BUREAU, Frederick C. Davis, Manager, 312 Crocker Bldg., San Francisco, Cal. —Meeting place and date to be announced.

BUILDING BRICK ASSOCIATION OF AMERICA, H. Jerome Lee, Secretary, 481 Marbridge Bldg., New York.—Meets at New Orleans, La., March 2-5, 1914.

OHIO BRICK AND TILE ASSOCIATION, George B. Drennan, Secretary, Plymouth, Ohio.—Meeting place and date to be announced.

ILLINOIS CLAY MANUFACTURERS' ASSOCIATION, A. E. Huckins, Secretary, Champaign, Ill.—Meets at Champaign, Ill., Beardsley Hotel, Jan. 22-24, 1914.

WASHINGTON CLAY WORKERS' ASSOCIATION, James Gibson, Secretary, Seattle, Wash.—Meeting place and date to be announced.

WESTERN ONTARIO CLAYWORKERS' ASSOCIATION, Alfred Wehlan, Secretary, Cairo, Ont.—Meeting place and time to be announced.

TEXAS CLAY MANUFACTURERS' ASSOCIATION, James Harry, Secretary, Dallas, Texas.—Meeting place and date to be announced.

SOCIETY OF VITRIFIED CLAY MANUFACTURERS, W. H. Bassler, Secretary, 814 Chamber of Commerce, Chicago.—Meeting place and date to be announced.

INTERSTATE MANTEL & TILE DEALERS' ASSOCIATION, Robert Beck, Secretary, 1907 Michigan Ave., Chicago.—Meeting place and date to be announced.

OHIO FACE BRICK ASSOCIATION, W. D. Richardson, Secretary, Columbus, O.—Meeting place and date to be announced.

INTERNATIONAL CLAY PRODUCTS BUREAU, Geo. H. Tifft, Secretary, New York Life Bldg., Kansas City, Mo.—Meeting place and date to be announced.

WISCONSIN CLAY MANUFACTURERS' ASSOCIATION, Samuel Weidman, Secretary, Madison, Wis.—Meets at Republican House, Milwaukee, Wis., Jan. 29-30, 1914.

BRICK BUILDERS' BUREAU, N. Ellery, Secretary, Merchants' Exchange Bldg., San Francisco, Cal.—Meeting place and date to be announced.

NATIONAL TERRA COTTA SOCIETY, Wm. D. Gates, Peoples' Gas Bldg., Chicago, Secretary.—Meeting place and date to be announced.

OKLAHOMA BRICK MANUFACTURERS' ASSOCIATION, E. B. Wentworth, Secretary, Oklahoma City, Okla.—Meeting place and date to be announced.

NORTHWESTERN CLAY ASSOCIATION, Axel. Andersen, Secretary, 3145 Calhoun Blvd., Minneapolis, Minn.—Meeting place and date to be announced.

ARKANSAS BRICK MANUFACTURERS' ASSOCIATION, W. W. Dickinson, Jr., Secretary, Little Rock, Ark.—Meeting place and date to be announced.

ALBERTA CLAY PRODUCTS MANUFACTURERS' ASSOCIATION, Mark Drum, Secretary, Calgary, Alta.—Meeting place and time to be announced.

MEETINGS ALREADY HELD.

NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION, Will P. Blair, Secretary, Engineers' Bldg., Cleveland.—Met at Cleveland, Ohio, Sept. 15-17, 1913.

AMERICAN FACE BRICK ASSOCIATION, R. D. T. Hollowell, Secretary, Park Bldg., Pittsburgh, Pa.—Met at French Lick, Ind., Dec. 10-12, 1913.

FACE BRICK DEALERS' ASSOCIATION OF AMERICA, R. L. Queisser, Secretary, Schofield Bldg., Cleveland, Ohio.—Met at French Lick, Ind., Dec. 10-12, 1913.

IOWA CLAY PRODUCT MANUFACTURERS, C. B. Platt, Secretary, Van Meter, Ia.—Met at Des Moines, Ia., Dec. 10-12, 1913.

UNITED STATES POTTERS' ASSOCIATION, Charles F. Goodwin, East Liverpool, Ohio, Secretary.—Met at Pittsburgh, Pa., Dec. 2-3, 1913.

SAND LIME BRICK ASSOCIATION, W. E. Plummer, Secretary, Buffalo, N. Y.—Met at Harrisburg, Pa., Dec. 9-10, 1913.

The Passing of the Tall Chimney

By William A. Butler

THE tall chimney to which the native points whenever a stranger asks him where a brick or tile works is located, is fast becoming a thing of the past, and it is safe to predict that the coming generation will see the day when tall chimneys in brick works will be as scarce as the proverbial "hen's teeth."

Ours is an age of conservation, and the enormous waste of fuel that we have inherited from our ancestors, who before even the pessimist warned them that posterity would one day suffer from their wastefulness, and could see nothing but seemingly inexhaustible supplies of wood, coal, gas and oil, this enormous waste of fuel, with the price steadily advancing comes home to us in a way to make us pause. The tall chimney is another form of waste also inherited from our ancestors. The combustible gases that escape from the top of the tall chimney often represent more than 50 per cent of the fuel used. In some cases better methods of stoking and gasifying the fuel have reduced this waste very materially, but even in the most economical systems, not excepting the famous Hoffman kiln, the gases escaping through the tall chimney represents a greater loss than the uninitiated are aware of. It has been demonstrated at home and in Europe that there is enough heat constantly escaping from any kind of a kiln to dry all the bricks that the kiln is capable of burning, if this heat is but conserved; and the solution of the problem and subsequent development points to the elimination of the tall chimney, the substitution of the blower, and utilization of all gases that contain heat.

The advocates of the tall chimney point to the fact that as there is always a draft up a chimney whether the fire is going or not, and this force to be replaced by a fan or blower, requires additional power to operate the kiln.

Now, the claims of these tall chimney advocates are necessarily limited, as the additional conservation of heat and the drying "all the brick the kiln can burn" by means of a blower, puts the tall chimney out of the question.

I have personally been up in two of the tallest chimneys in San Francisco prior to 1906, which afterwards came down with that dull sickening thud, and it makes me creep to think of it. The tall chimney has had its day. Long life to the fan.

"Hy-tex" Small House Competition.

A contest for the best design of a brick house costing no more than $7,500, has been announced by the "Brickbuilder." The prizes offered are $500 for the winner of the first award, $250 for the second, $150 for the third and $100 for the fourth. The problem is a detached house, providing usual accommodations for a small family of moderate means. One or more of the several varieties of "Hy-Tex" brick are to be used for facing, and the terms of the competition impress the contestants with the fact that a generous appreciation of good brickwork is essential to prize-winning form.

Simple Rope Haulage System

How One Clay Plant Converted an Old Wire Rope and Drum Arrangement Into an Inexpensive and Efficient Method of Getting the Shale to the Dry Pans

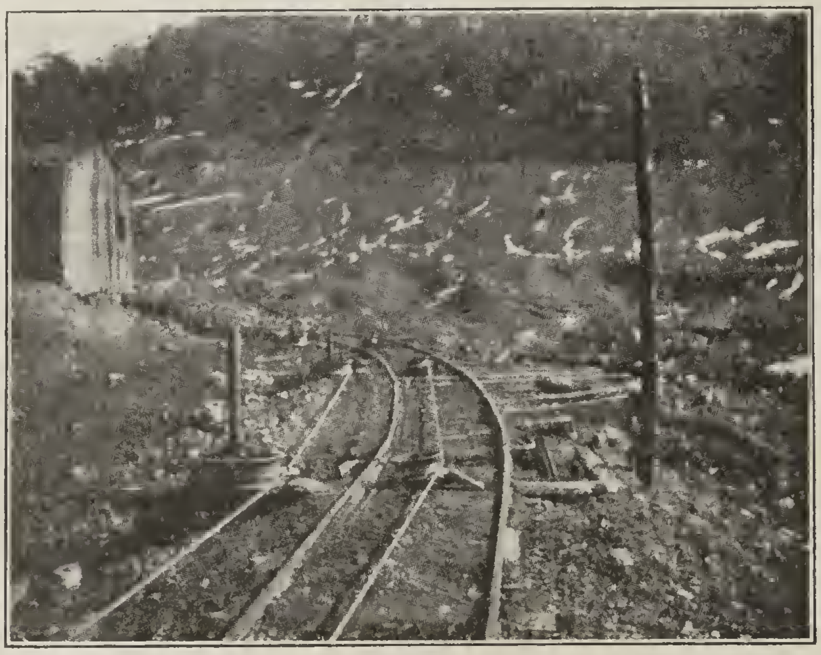
By W. A. Hull

Too little attention is paid to the method of getting the clay or shale from the pit to the dry pans or storage sheds. While this is a small item in the bill of expense which your bookkeeper hands to you at the end of the season, it is, like all other things, worth while considering. Mr. Hull here tells how he solved the problem at Richlands, Va. His article is from a paper read before one of the sessions of the American Ceramic Society.

THE problem of conveying the raw material to a brick plant is usually not difficult or complicated. Nevertheless, it is one of the problems of brick making and one which must be solved individually for each plant, according to the various conditions existing, including the condition of the pocketbook. In some cases, what seems best at the start, and perhaps is best at that time, needs to be changed later on to meet altered conditions. That was the case with the Richlands Brick Corporation of Richlands, Va.

The Old Haulage System.—The plant is situated on level ground just beyond the slope of the hill from which the shale supply is obtained. This shale bank was opened up some years ago at the point nearest the factory, and has been worked, for the most part, along the lines of least resistance. This resulted, eventually, in a bad lay-out and high operating cost.

In order to get the tram cars high enough above the dry pan to put the shale in the pan by gravity and at the same time provide a shale storage for rainy days, the tram track was brought into the factory building over a trestle which gave the dumping place an elevation about twelve feet higher than track level on the flat ground between the factory and the shale bank. The tram cars were drawn up this incline by means of a wire rope and drum.



From the foot of the incline the ground slopes gently upward for about two hundred and fifty feet to the point, near the foot of the hill, at which the shale was first worked. Naturally the cost of getting the cars back and forth from the shale bank to the foot of the incline was small in the beginning, because the distance was short.

It was found, however, that the outcrop shale was better than that deeper in the hill and that the best way to work the shale was to skirt along the foot of the hill on a line making an angle of about 70 degrees with line of the track from the factory to the first working place. As the width of the workable bank was not great, the progress of the work increased the haulage distance rapidly. The bottom was allowed to rise gently so as to provide drainage and keep the grade of the track such that a loaded car would run out, and down to the foot of the incline, by gravity. A man or big boy was required to run the car out to keep it from going too fast in places and wrecking and to stop it at the foot of the incline. Then a mule was required to pull the empty cars back to the bank and a boy to ride the mule down to get them. The distance became greater and at the same time the tonnage of shale used was increased until it became necessary to put on another mule and mule boy. By that time the length of the tram road was nearly 1,000 feet, and the factory was using from eighty to one hundred cars of 1½ yards capacity per day. The haulage pay-roll was as follows:

Drum man (contract) say....	$1.75	
Car rider	1.50	
Two mules	2.0	
Two boys	1.00	$6.25

The New System.—The cars in use were of the revolving type and heavily built. One empty was enough for a mule to pull up grade. Doubtless we could have reduced the haulage cost to some extent by substituting lighter cars with good brakes, so that one man with one mule could handle two or more cars at a trip from the shale bank to the foot of the incline and back. But we had the drum and the engine; and it seemed like a reasonably simple matter to make the machinery do all the work, with an endless rope to the shale bank. This was decided upon some months before the second mule became necessary, but some time was required to work the bank into such shape that we could cut out the meanderings of the old track.

When this was accomplished, there remained but one curve, and the track was in very fair shape as shale tracks go.

In order to pull in loads and return empties on a single track, keeping the rope on rollers as far as possible and at the same time avoiding extra work and delay at the dump, we had to make the drum reversible. This drum is a good substantial specimen of the hoisting drums commonly in use in brick plants for pulling cars up to the dumping place. It is friction-driven, the pulley shaft being belted to an independent 10-inch by 16-inch slide valve engine. At each end of the drum the flange carries a friction rim to engage a friction on the pulley shaft. This gives a proper distribution of the strain on the drum shaft. The bearings in which the drum shaft runs act as eccentrics and each is controlled by an arm or lever. These two levers are connected by a cross bar.

Originally, the frame carried the pulley shaft on one side of the drum and brake shoes at the other. We took off the brake shoes and put in a second driving shaft with frictions and pulley. There were two pulleys on the engine and we connected the new driving shaft on the drum frame with the unoccupied engine pulley by a crossed belt. The engine runs continuously and the drum is now run either forward or backward by pressing it against one or the other of the two sets of frictions. When standing midway between the frictions, the drum is out of gear.

A bullwheel, consisting of an idle pulley running on a vertical shaft in a home-made frame, was placed near the shale bank end of the tram road. The rope would be more out of the way if the idler were under the ties, but at the start it seemed best to put it in in the easiest way and to have it up where it could be got at.

The rope extends from the drum to the terminus in two parallel lines, one between the rails and the other over the ends of the ties. Rollers are placed at intervals along these two lines to carry the rope. Curve sheaves with chilled wheels and cast stands were purchased to carry the inside rope at the curve. For the outside line we made sheaves by bolting two old car wheels together, flanges outward, making loose pulleys. These are set up on vertical shafts and do the work very well.

The equipment that had to be bought for the rope haulage is shown in the following list. The prices do not include freight. In addition to this list there are some few items, not large as to original cost, that should be credited to an unsightly but highly esteemed scrap pile.

EQUIPMENT PURCHASED.

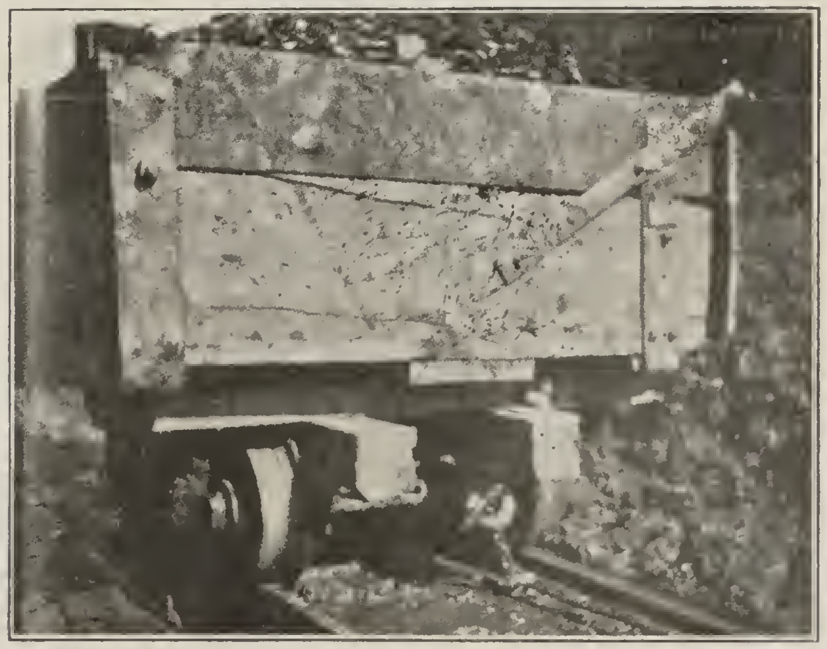
2,000 ft. ⅝ in. cast steel wire rope	$115.16
6 chilled sheaves with 17 in. stands	21.30
10 No. 2 inclined rollers and boxes	26.00
50 gum wood rollers 6 in. by 12 in., with wood bearings	14.00
12⅝ in. wire rope clamps	1.44
1 piece 2⅙ in. shafting 6 ft. long	
2 paper frictions	
2 boxes	
	26.00
1 10 in. by 10 in. wood split pulley	1.98
55 ft. 8 in. 6-ply canvas belt	23.76
16 in. electric gong	5.75
25 No. 4 porcelain knobs	0.25
9 dry batteries	2.25
2,000 No. 10 galvanized smooth wire	1.87
	$239.76

This sort of haulage was new to all of us, so we expected some trouble at the start. Our expectations abundantly were fulfilled. However, the first attempts were timed to come in the dull season and were not as expensive as they would otherwise have been. And we had the advantage of being able to reinstate the mule on short notice. We could try the rope, discover something more to be done and then go on hauling the old way until we were ready to try again. This gave us a chance to avoid paying the full penalty for our inexperience.

One thing we entirely overlooked. A rope wrapped on a single drum takes the form of a spiral, and as the drum winds the rope from one side and unwinds it from the other there is a travel of the rope across as well as around the drum. If the drum were long enough and large enough, the rope could go its course without interference; but with our little drum and 1,000 feet of haulage this was out of the question. So we placed an idle drum or spool under the pulling drum and parallel to it and ran the rope around both. This, I believe, is regular endless rope practice but we did not know it at the time. We find that three wraps of the rope around the drum is ample.

At first we had trouble with slipping and put extra lagging on the drum with grooves in the lagging. Later, when we renewed this lagging, we found that very slight grooves simply to give the rope a definite path were sufficient. The essential safeguard against slipping seems to be to take care of the slack in the rope. The proper way to do this is to have a weighted car on an incline and have the rope pass around a drum on this car. This will automatically take care of the slack and give a uniform tension in the rope.

In adapting our old equipment we could not conveniently put in such an arrangement, so we left it out. We regulate the length of the rope as it changes with temperature conditions by throwing it in or out of one or two of the outside sheaves at the curve. Any further adjustment is made at the bullwheel at the end of the line. We secure a constant tension by means of the sag of the outside rope, which at the factory end is carried on rollers placed high and far apart. This seems to answer the purpose very well.



On one side, the rope runs the entire course between the rails. This makes it easier to keep the rope on rollers and minimizes the wear. The inside curve sheaves had to be placed a little outside the center of the track on account of low bearings on our old cars which would otherwise have struck the sheaves stands. For some time we had trouble on account of the rope coming out of the sheaves. We still have the rope fastened to the car a little to one side of the track center on this account. No grip is used, so far, but a rigid iron ring is secured to the frame of each car and a tee on a chain about twelve inches long is slipped through this ring to make the fastening. This short chain has a play of about two feet along the rope, between two wire rope clips that act as stops. This play gives the mule boy something to go and come on in spotting his car over the hitching place.

For some time we had trouble at the curve, due to the rope coming out of the sheaves. The load would come down around the curve with some slack in the rope ahead of the car, and if the rope were out of one of the sheaves there was a fair chance that the slack rope and dangling chain would loop around that sheave with disastrous results. Wooden approaches or guards—simply a sloping piece of plank to carry the rope over the sheave without catching—have done away with this trouble. The rope sometimes comes out of a sheave but on the return trip the car invariably threads it in again. We do not regard the curve as a desirable thing, but it is no longer a source of trouble.

With a given engine speed, the speed of the rope can, of course, be regulated by the size of the pulleys and frictions between the engine and the drum. As we have it arranged, the empty cars make the trip of approximately 1,000 feet in about one minute and fifteen seconds, or at the rate of about nine miles an hour. The loads come in in about two minutes or about 5.7 miles an hour. Both speeds could be increased somewhat but in our case it is not necessary. At this speed the engine will pull two heavy cars each loaded with 1½ yards of shale, up the incline together; allowing two minutes for shifting cars at bank and two for dumping, a round trip can be made in 7¼ minutes. This would make 82 trips or 246 yards in ten hours. That is about twice what the factory uses, so there is a liberal allowance for the inevitable little delays. Furthermore, our present cars will be replaced with new ones of three or four yards capacity, built low and dumped at a self-dumping tipple. This will shorten the time required for dumping and for shifting at the bank.

We are still in the experimental or developmental stage with this haulage. For the present the pay-roll for operation may be taken as follows:

Drum man	$1.75	
Mule	0.50	
Boy	1.00	$3.25

We rate the mule at only 50 cents because his work is light and he is growing younger on short rations. On the face of it, this represents a labor saving of $3.00 per day or about 7 cents per thousand brick. However, the additional expense of up-keep and power will offset a considerable portion of this saving. There is also an added risk of breakdowns.

Price Maintenance

The National Association of Stationers and Manufacturers has circularized the membership of the Chamber of Commerce of the United States in reference to amending the Sherman Anti-Trust Law so as to permit contracts for price maintenance between manufacturers and dealers. The circular says:

"That statute is not the creation of business men, but of lawyers. The latter are not broadly gifted in the requirements of business, therefore the commercial interests of the country should advance their arguments through their national organization, the Chamber of Commerce of the U. S. A., in such a manner and with such a concentration of energy, that the lawyers in Congress must be persuaded to yield legal abstractions to commercial requirements.

"If your organization has already taken a position in favor of the general principle of price maintenance, it would be well to instruct your national councillor to advocate action by the Chamber of Commerce of the U. S. A., as recommended in the pamphlet.

"If you have not reached a decision on the subject, permit us to urge that you promptly consider it, in order that the session of Congress which begins on December 1, 1913, may have the benefit of the best thought of the commercial interests of the whole country."

The above photograph, furnished by Harlow D. Savage, president of the Refractories Manufacturers' Association, shows a majority of the membership of that organization, meeting in Pittsburgh, Pa., where they were guests of the Harbison-Walker Refractories Company.

Bag Wall Burning

By Mark D. Bentley

We are introducing a new writer to "Brick and Clay Record" in this article on bag-wall burning and we believe our readers will agree with us that we have made a "find."

The name appended is only a pen name, as for reasons of a personal nature, the writer does not care to disclose his identity—at least not just yet. But, we are at liberty to say that the author is a graduate of a ceramic school and has spent several years in some of the largest clay-working plants in the country—first as yard man—then in the machine room—then as assistant burner—then head burner and, finally as superintendent of two of the best equipped plants in the country. He has promised us a series of articles on plant problems, all based on a technical as well as a practical knowledge and this one on bag-wall burning is a pretty fair sample.

THE chief trouble encountered in the operation of a common-clay plant is generally in the burning. Consequently we look far and wide for new kilns, new appliances, and discuss the relative values of oil, gas or coal with every chance clayworker we meet. We expend tons of lifting and thinking energy on the rainbow chase instead of using half that energy on making efficient *the kilns we have already on hand.*

The purpose of this paper is to give to the burner a *simple,* effective method of increasing his efficiency, to cut down his coal consumption, to actually increase the value of the burn by getting a more uniform product, top to bottom of kiln, a higher percentage of No. 1 ware and also reduce the burning hours.

We will assume as a starter, that the kiln has been watersmoked and the oxidization, or heating at stage, has been commenced. The fires are raised on the grate bars, and the efforts from now on are to procure a finishing heat in the bottom of the kiln without overburning the top ware, and to do this as fast as possible, the degree of speed depending entirely on the ability of the clay to withstand a fast heating up.

Surplus carbon, sulphur or lime or a non-refractory clay all militate against speed. Also they are factors which *demand heat control.*

The ordinary method of control is by schedule. For instance, the fireman fires once every hour, or every half hour, sometimes each twenty minutes, so regulating his charges of coal so that in his best judgment the heat will hold until it is time to fire again.

There are, of course, variations from this, but whatever the method of firing the fireman works primarily with the fire, giving it (the fire) a rule-of-thumb attention which produces always *varying heats*—a feast and famine— an alternation of high and low heats.

An old burner realizes that the best results are obtained by a steady flow of heat into the kiln, but he rarely knows how to accomplish this.

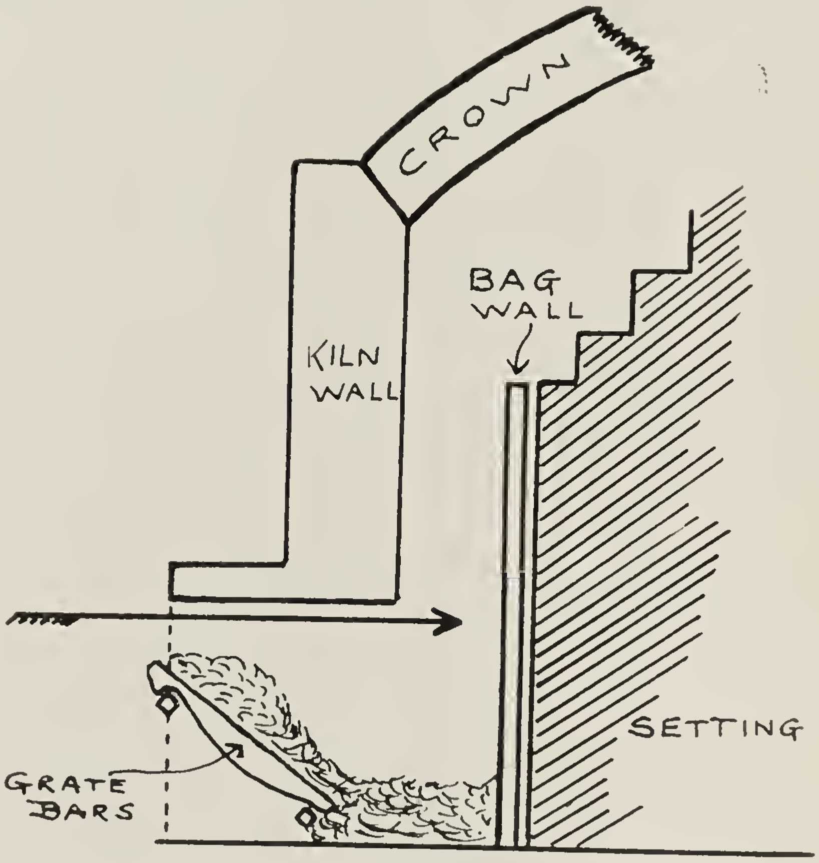
Yet, the key to the whole situation is directly before him, and this key is *the bag wall.* And why?

Because it is the *intermediate* point between the *original source* of heat and the ware to be burned. It is as delicate as a pyrometer. *Every change is pictured on that wall* and it is pictured there *before* it is too late,—before the heat has had a chance to *injure* the ware. Therefore, it is more *timely* than the pyrometer which *registers damage done* or work completed.

Too hot a fire manifests itself on the bag wall *first, before* it is transferred into the kiln. The remedy is obvious. A higher percentage of cold air over the top of the bed of coals or a smaller amount of coal cools on the next fire.

Too much air over the top of the bed of coals or a fire needing attention or coal, is shown on the *bag wall* by darkened bag wall brick. The ends of the brick *next* to the furnace *fire* are dark. *Between* the brick of the wall, the body heat of the kiln shows up. It looks like a *dark* brick wall laid up with a *white mortar joint.* Did you ever see it?

A *dirty fire* shows itself just as plainly as extremes of heat by a dull red *lifeless* color on the *bag wall*—perhaps best described by stagnant.



ARROW SHOWS LINE OF VISION, OVER BED OF COALS TO BAG WALL

A burner or fireman, after *learning to read his bag wall* is never at a disadvantage. He knows at all times just what amount of heat he is pouring into his kiln, knows whether it is high in temperature or low in temperature.

An air hole in the bed of coals on the grate bars is immediately resigtered *on the bag wall.* The fire may be bright, clear and seemingly pouring sufficient heat into the kiln, but its effectiveness is lost by an influx of cold air through an air hole. If this is so, it is *registered on the bag wall,* showing the same indications as a fire needing coal.

The burner is *safe* as long as he can *see his bag wall,* for IT *fairly screams* conditions at him, *to he who makes it his business to master burning by bag-wall reading.*

Therefore, the burner should so regulate his fires that the color on the bag wall remains at a constant color. This color is to be decided upon by existing conditions and by the stage of the burn.

The results should be manifold. First, a uniform volume of heat should be supplied to the kiln all the time and always under control. Therefore, the heat is distributed evenly through the kiln from top to bottom *before* settle starts in. Second, where a settling heat is applied (and the *bag wall* tells you when you get it), the ware *shrinks* or *vitrifies* or *matures both* top and bottom. It also shrinks evenly throughout the kiln, practically doing away with rolling and swaying which means seconds and culls. Third, the top is not overburned *before* a good bottom is obtained. All this, because the fireman had the *control* necessary to *prepare* his kiln for *high* heat treatment.

Coal is thus *saved*, for the kiln is not alternately heated and chilled, and a fire is fed just *when it needs it*. Time of burning is reduced by the same token.

The whole procedure resolves itself very simply into the following:

A method of control is wanted. This control *cannot* be attained by merely good judgment on the part of the burner in his manipulation of the fire; but, if he has a *gauge* whereby he can see *at all times* just what *work* his fire is doing, *then he has control.* And this gauge or mirror *is the bag wall.* It is inside the kiln—an interpreter—a go-between, yet, in such a position that it is easily read. If it is *carefully* studied, it will depict as *accurately* as an expert accountant that which is being received by the little blocks of stock within.

Potters' Scourge Arouses Nation

THE GROWING number of victims of the potters' dreaded scourge—lead poisoning—should most certainly arouse the most serious international concern, says the Vancouver, B. C., "Province." Unfortunately, this disease has not received that attention which the same urgently calls for, as, with the exception of Great Britain, there are but scant statistics forthcoming; this renders an efficacious international comparison between the regulations and conditions existing in the different countries impossible.

New regulations were issued by the Home Office in Great Britain in January of the present year. These regulations are immensely complex and besides dealing with lead poisoning, contain certain rules to prevent women and young persons being overstrained either by carrying heavy weights, or by wheel-turning, lathe-treading, etc. The regulations apply only to potteries where lead glaze is used. Exemptions from certain of the general regulations are allowed in leadless glaze factories, defined as those where the glaze used does not contain more than 1 per cent lead.

In Austria there are no special regulations, but the industrial code provides vaguely that the "employers shall maintain all arrangements for the health of the workers.' The same may be said with regard to Belgium.

In France a decree of May 13, 1913, prohibits the employment of young persons under 18 in chromo-lithography in ceramic works. There are more specific regulations which contain provisions respecting the manipulation of oxides and other compounds of lead, prohibits the "dipping" of pottery with bare hands, and requires employers to provide and maintain, at their own expense, overalls gloves and respirators for the workers. A further decree requires employers to appoint and pay a medical man to carry out periodical examinations of persons employed in lead processes. But even this is not carried out very efficiently, for one inspector reports that of ten potteries in his district (Dijon) only three had started their health register in 1911.

In Germany there are no special regulations affecting the ceramic industry. The amount of lead poisoning in German potteries is uncertain, as there is no general notification of industrial diseases.

In Holland there are no regulations affording protection to male workers over 16 years of age. Lead poisoning was made compulsorily notifiable in 1911, and it is yet too early for the results to be useful for comparison. In June of this year, however, it was reported that there were 84 cases of lead poisoning in 1912, and 31 cases from January to May, 1913.

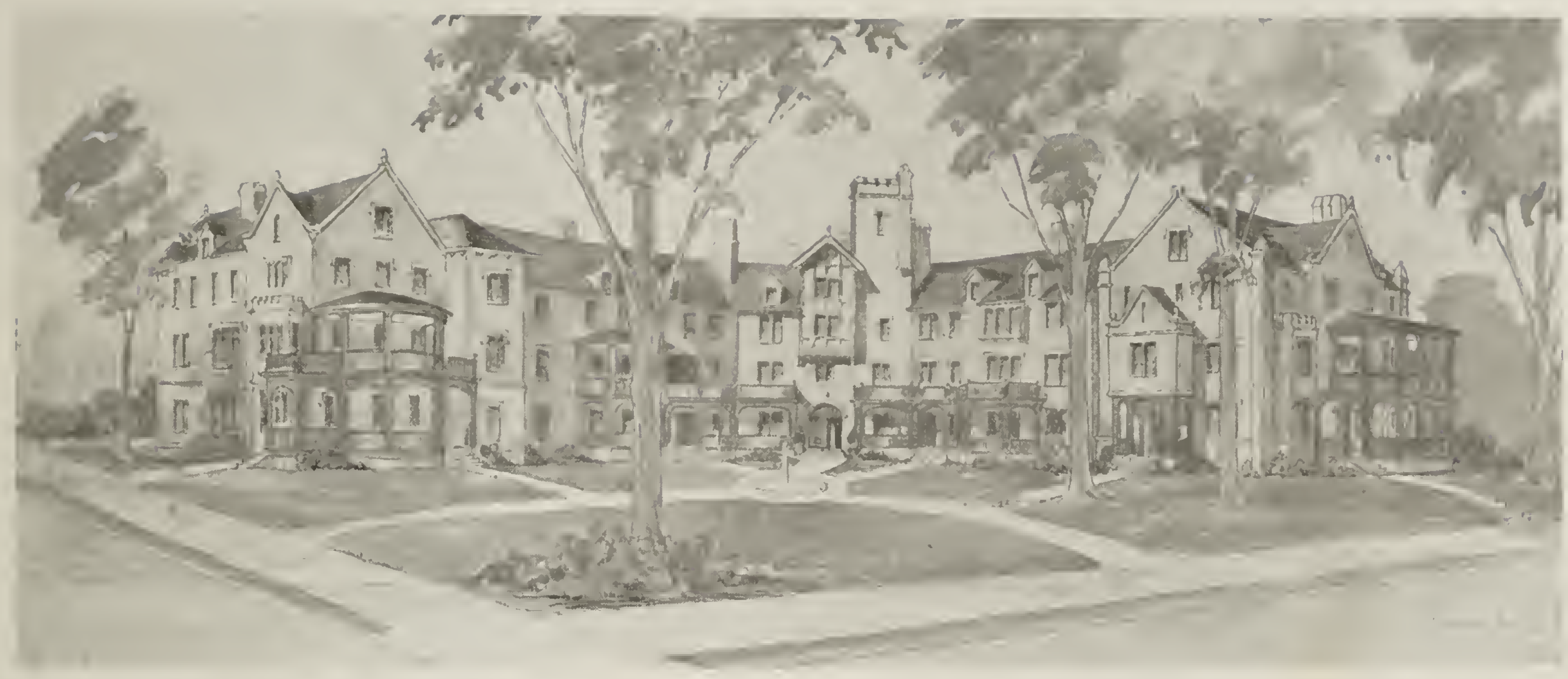
Clearly there is only one course open to those who wish to see the horrible ravages of lead poisoning banished from the pottery industry, and that is the promotion of an international treaty prohibiting the use of lead in the making of pottery. A similar treaty prohibiting the use of white phosphorus in the making of matches has been actually adopted and adhered to by practically every European country, so we have cause for hope that a treaty prohibiting the use of the deadly lead may soon be an accomplished fact.

Plans Modern Equipment.

L. G. Rose, of the Minneapolis Clay Brick Company, Minneapolis, Minn., was a visitor in the editorial rooms of "Brick and Clay Record" a few days ago. Mr. Rose's company is contemplating some improvements on the two or three plants operated. All the yards are open-air yards and the improvements contemplated include the consolidation of the three plants, the erection of modern fire-proof buildings, the installation of a waste heat drying system and new kilns —probably gas producer continuous.

Orders Ten Brick Machines.

What is claimed to be the largest single order for brick machines ever given in this country was placed recently with the Enamel Concrete Brick Company, of Des Moines, Iowa, by the National Builders' Supply Company and the Enamel Concrete Brick Company, Ltd., of 30 St. Francis Xavier St., Montreal, Can. The first of these machines will be installed at Mascouche, Que., twenty-seven miles northeast of Montreal and nine other machines will be distributed throughout Canada. M. Monchicourt, the accredited representative of the foreign banking house of A. Jacobs, 73 Hausman Boulevard, Paris, France, and H. C. Harding, Canadian representative and managing director of the French company, which has recently taken over the Canadian company, are negotiating with the Des Moines concern for the right to install these machines in Europe. The process by which the brick are made is one by which concrete is subjected to pressure in brick moulds, with a surfacing material of finely ground white clay, which is given a polish by smooth steel plates. The brick, it is claimed, are impervious.



Building a Co-Operative Home

By Allen E. Beals

Staff Correspondent "Brick and Clay Record"

This is the true story of how a great co-operative apartment building built of burned clay, came into existence—a structure that is not only architecturally pleasing to look upon, but homelike and comfortable to its tenants.

And, strange to say, Theodore Roosevelt and an absconding cook are responsible for the entire institution.

ONE day, during the presidential campaign of 1912, the little residential New York suburb of White Plains was scheduled to have a distinguished Bull Mooser visit it. Now there has lived in the county seat of Westchester for many years, a very enterprising and far sighted person, whose home, rich in Colonial associations, long has been one of the leading landmarks on the old Boston Post Road. Finding that the procession was to pass that way, this chief booster in the home town of the original booster decided to show his true colors, so when the sun rose on that particular September morn, it shone full upon a flaring poster on his porch bearing the words:

WE STAND FOR ANYTHING
THAT'S PROGRESSIVE.

That night the cook left. Perhaps she was the exception in that progressive household—at any rate she quit. Now cooks are vital to the happiness of the suburban resident, although the suburban residence is not always vital to the cook; and pondering the problem by his own fireside that night, Edwin B. Day, cashier of the Battery Park National Bank, harkened to the wind flapping his proclamation of progressiveness—the while diligent efforts of the feminine portion of his household to get in telephone touch with all the employment agencies in New York grew loud and insistent.

"Why not do away with the servant problem altogether?" Epictetus had asked the very same question some eons back, but old Ep. never had for his neighbor one John N. Farley, who could see a good offer in the offing without the aid of a pair of binoculars.

"Where are you going, Edwin?" asked his household in chorus as he suddenly rose from his easy chair before the grate and plunged, hatless, beneath his flapping flambeau of progressivism, and across the lawn to Farley's.

The family thought he had gone in search of a new cook. But not so. That brief journey across the dividing green was destined to place White plains just one niche higher in the hall of fame for it gave her the world's first and, just at present, only "Constellation Home," the house ideal, in the coat of arms of which might properly be placed a Bull Moose rampant upon a peaceful plain of Progress, and with a brilliant sun scintillating beams of happiness and joy over a hundred hearths with but a single cook.

That was the conception of an ideal home that went from Day to Farley. The latter enthused and Beverly S. King, the man who put the New York Engineers' Club on the architectural map, did the rest.

A "Constellation House" will require definition, because it is distinctly different than anything known to architecture. It is an apartment house in which every apartment has its own porch, its own entrance and its own individuality, but a single vacuum cleaner plant; individual garages, but a general heating plant; individual halls, but a general dining room; a maid for each separate household, but one cooking staff for all; in short, an apartment hotel with all the advantages of a home in the suburbs and none of its annoying problems.

Somebody once said that if three Americans became stranded on a desert isle, the first thing they would do would be to elect a president, vice-president and secretary. So when the light of Day shown forth on Farley and others to whom the plan was broached, The Datona Association was formed, to build and manage "Constellation

Homes"—Messrs. Day and Farley contributing their adjoining parcels of land to form a nucleus on which the enterprise might start.

It was an irregular plot of land, a difficult one for any architect to evolve a building project on, but the accompanying illustrations will show how the floor plan was laid out for the homes themselves and for the general dining room and the throne-room of the cook, as well as the general facade appearance of the structure in its completed form.

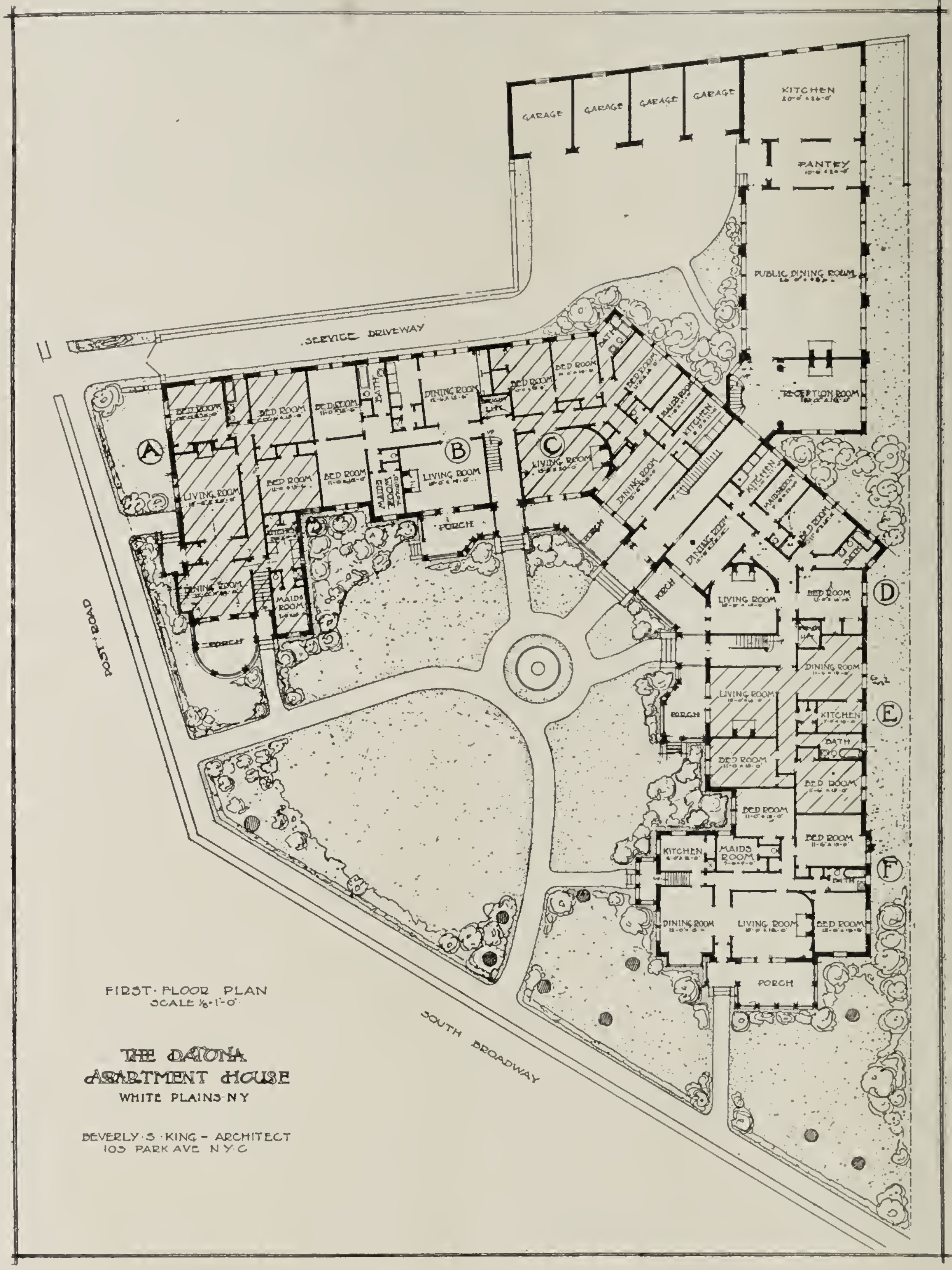
The cost of the project was necessarily a matter of limitations. In an operation of this kind, first construction cost very easily might jeopardize the success of the enterprise. Long and careful conferences were held upon the question of construction and it finally was decided that only the best of fireproof building materials should be used and that burned clay was to have a conspicuous part in its construction. When the estimates were all in, the total cost of the enterprise was shown to be $182,135.51 divided as follows:

Masonry	$64,471.89
Brick Veneer	7,594.00
Slate & Tile Roofing	2,836.62
Carpentry	38,647.00
Tiling and Sanitary Floors	4,449.60
Elevators	12,562.00
Painting	6,674.40
Hardware	2,300.00
Vacuum Plant	1,100.00
Plumbing, including Kitchen Equipment	19,000.00
Heating	16,000.00
Electric Fixtures	5,000.00
Refrigerating Plant	2,500.00

The great objection to the apartment house, whether it be in the city or the suburb, is its almost universal stiff and commercial aspect. It usually is built up close to the building line, precipitately rising six, seven, eight, ten or twelve stories, necessitating public halls, a quasi-intermingling with fellow tenants who may not be entirely congenial and the very close similarity in the mode of life and the form of service to that afforded in tenement houses, a thought that is not always pleasant to those who can afford the luxury of a detached home.

The feature that Mr. King has tried to develop from Mr. Day's idea is the hominess of the "Constellation Homes." After making the building absolutely fireproof with the best fireproofing material known to science—burned clay—he stops the height of the building at four stories and arranges the individual homes in the constellation in suites of five, six and seven rooms, with daylight in each room at all hours of the day and with plenty of closet space, a feature that will appeal at once to women. All apartments have a front exposure on the court. There will be a refrigerating system, thus doing away with the ice-man, and there will be a roof garden over the semi-detached portion of the house where dancing and concerts may be held, and where children may play.

The architect and owners decided upon the use of burned clay in the construction of this enterprise, not only because it was found to cost little, if any, more than other kinds of material, but because it represented a great saving in depreciation and in the sanitary features of the structure and, above all, presented a pleasing architectural effect.



World's Highest Building.

Plans for a new highest building in the world have been filed with the Bureau of Buildings of New York City, and application made for a permit. The structure will be 894.6 feet high, will have fifty-one stories, and will cost over $12,000,000.

The Pan-American States Association filed the plans. It is proposed to erect the building on the block bounded by Broadway, Eighth Avenue, Fifty-seventh and Fifty-eighth Streets, in the Borough of Manhattan.

F. E. Keeler

Who's Who

Being Somewhat Personal and a Little Bit Reminiscent, With the Clayworker as the Target of the Camera Man and Editor

L. R. Blackmer

I.—An Iowa Man Who Does Things in a Big Way
II.—A Plant Superintendent Who is a Convention Bug
III.—A Clayworker Who Might Have Sat in Wilson's Chair

RUNNING FOUR BIG PLANTS A PART OF EACH DAY'S WORK

OUT in Iowa way—Mason City, to be exact, there is a man who does things in a big way. He happens to be a clayworker because his father before him was a clayworker and he was, in a way, thrust into the game. Doing things in a big way, and being a clayworker, it is natural he conducts his business in a big way.

Therefore, he runs four or five clay plants within a stone's throw of each other, and each of these are big plants.

Keeler—F. E., is the way his name is transcribed in the family Bible, and it is the cognomen by which his wife, his relatives and his friends know him. His enemies and some of his business competitors use a different one.

Keeler—F. E., for we must be distinctive as there is a brother—B. C.—younger—and aggressive—who has something to say about the way the Keeler business runs, and there must not be any confusion. Keeler—F. E. is president of the Mason City Brick and Tile Company, and anyone of the plants he conducts is big enough for any ordinary man to run. He has them located within a stone's throw so he can place his hands on them.

It must be lovely to be a Keeler and run four or five clay plants.

A CONVENTION BUG

Fred Talbert

FRED TALBERT, who is by profession the general superintendent of the LaClede plant of the LaClede-Christy Company of St. Louis, is one of the best known men in the industry. Of course, the fact that he is the guiding genius of one of the largest and most aggressive clay manufacturing establishments in the country had something to do with this, but not all. Talbert is a convention bug. He attends them all.

MIGHT HAVE BEEN PRESIDENT OF U. S. HAD HE SO CHOSEN

L. R. BLACKMER, president of the Blackmer-Post Co., of St. Louis, could have been president of the Standard Oil Co., the United Steel Corporation or even of the United States had he only wanted to. Because he chose the clay product industry for his field of pursuit and the Blackmer-Post Co. as the particular medium through which he was to expend his energy, he became president of one of the largest manufacturers of large and small vitrified sewer pipe in the world.

It is fortunate for the clayworkers that Blackmer picked out the clay industry, because he really is a credit to it.

If ever Congress makes a law that permits legal combinations and the clay industry decides to amalgamate, it is dollars to doughnuts that Blackmer will be president—or general chairman—or up among the high officials. He could not help it and neither could the clayworkers—because he is a born ruler of men—a natural executive.

And yet Blackmer is not a selfish man—do not think that—he is just simply an aggressive business man, who wants to accomplish something. He has a big heart—a generous nature and few enemies and that is going some.

How Cox Got Into the Game

(Continued)

BEING THE STORY OF A YOUNG MAN WHO FELL HEIR TO A RUN-DOWN CLAY PLANT

By Iverson C. Wells

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"MOTHER, it looks as if I was about to lose all that I have gained." I said, turning to her. Then I explained the purport of the telegram from Steinway, the machinery man, who had, at the last moment, turned me down on the liberal terms he had promised me on the equipment for the new plant.

"Isn't there some way out of it?" she asked. "Isn't there any other way?"

I shook my head. "I'm afraid not, mother. It was sheer nerve on my part that pulled me through as far as I got. No, it looks as if I had to give up or stick it out as a piker."

Mother placed her hands on my shoulders and looked up into my eyes with tears in her own.

"This is not my son talking. His slogan always has been, 'Never say can't.' He never was a quitter and that was what has made me so proud of my boy."

She kissed me and with a gentle pat on my arm she told me to go to my room and think it over.

"Get by yourself, my son," she admonished me. "There is some way of doing this—some way out of it."

"You're right, mother, there is some way."

More than once this grey-haired friend of mine—my best and safest adviser and counsellor, had saved me from "giving up the ship." More than once she had been my inspiration. And I knew she was right this time—as she always had been. There was a way and I must find it.

At the door I met young Simpson.

"Hello, Mr. Cox!" he fairly yelled as he ran towards me, grasping me by the hands. I forgot my own troubles as I saw the happiness depicted in his beaming countenance and listened to his gratitude over my efforts to secure his freedom and clear him of the charge of killing Sawyer.

We walked down the road and turned into a path that led into a wooded hill at the edge of the little town. For some time we discussed his case but I had to place a ban on further discussion of the subject because he insisted on bringing me in and harping on what I had done in getting him out of his predicament.

"I do not deserve it, Simpson, for I was one of the first to believe you guilty," I told him.

"Is it any wonder? Everyone did. Why, I almost believed it myself. It was a strong case of circumstantial evidence and but for you and your promptness in hiring that detective, I would have been railroaded to the gallows."

And thus he talked on, but my mind was otherwise occupied and I heard little he said. Simpson soon observed my inattentiveness and looked up in surprise.

Then I told him the whole story and he listened attentively. Finally, when I had recited the events of the last few days, he stood up and grasping my hand, raised me to my feet.

"Don't let a little thing like that worry you, Mr. Cox. Probably you were going too fast. We can dig in and build up slowly."

"Yes, but those contracts— think what they mean!"

We started back towards the village, Simpson ever eager to reassure me and offering many suggestions, none of which was practical or feasible. Finally as my silence increased he ceased talking and we strolled the rest of the way into the town without a word passing between us.

Unconsciously we turned into the plant and we were both so occupied with our thoughts we did not see the figure of someone standing near the office door as we approached.

"Hello, Mr. Cox," a cheery voice said in greeting and the next moment I was shaking hands with DeJones, the engineer. "You see I'm on time," he added.

DeJones was to meet the salesman from Steinways that day and we were to figure out the equipment for the new plant. I had the words on the tip of my tongue to say to him that the deal was off and send him back home, but as he took my proffered chair he interrupted:

"Cox, you certainly have made a hit here. While I was waiting for you I walked over town and got into conversation with one or two of your fellowstownsmen. They seem to think you are a live wire and predict all manner of success for you."

That set me to thinking and the thoughts came freely and fast. I turned suddenly to DeJones.

"Well, when shall we get to work?"

Simpson looked up in surprise, but if he had intended to say anything he never got a chance.

"When you are ready, Mr. Cox," replied DeJones.

The next moment I had pulled some chairs up to a table and was busily engaged in gathering up some sheets of paper.

"I suppose we will need a lot of these," I said as I held out some of the paper.

"I've changed my plans somewhat, since I saw you, DeJones," I said as we sat down. "I want you to lay out this new plant, suggest what machinery I shall buy and where. In other words, I am not going to handicap you in any way —either as to the equipment or as to the cost. You know the capacity and you know all about the conditions here—so go to it."

Simpson sat by in open-eyed astonishment as we talked over the preliminary work and as we started out to visit the site of the proposed new plant just across the road he followed silently. DeJones had to go to the hotel to get his surveyor and instruments and Simpson and myself promised to meet him at the new shale bank. On our way over Simpson turned to me.

"What in the world made you change your mind so suddenly? It was only a few minutes ago you said that Steinway had turned you down and certainly you haven't heard from him since."

"Simpson, the situation has changed entirely since then. I'm going to build that plant and I am going to pay cash for it. There'll be no trouble about getting the equipment."

I did not feel disposed to talk over my plans just then and Simpson asked no further question when he saw my reticence.

DeJones and his assistant were soon on the ground and all that afternoon and a part of the next day we were busy staking off the grounds. I soon saw the wisdom of employing a plant engineer, for DeJones began at the pit and began to lay out the entire arrangement of buildings, taking into consideration the question of efficiency in getting the clay from the pit to the mill and the economical handling of the raw material until it became a manufactured product.

Why go over all the details? It took us nearly a week to complete the survey, figure the layout and get things in shape for the plan drawings. DeJones returned to the city and ten days later returned with the completed drawings, the specifications and the estimated cost.

I had not been idle in the meantime. The very day DeJones returned to the city I went to one of the wealthiest men in Mauryville.

"Mr. Rawlston," I said, button-holing him on a street corner, "I want to organize a stock company and I want you to head it."

Rawlston looked at me in surprise but before he could frame the negative words that I felt were coming I continued:

"You know what I have done here without any capital at all. You know also what my prospects are. You know also that I was approached once or twice by local business men when I first got started with a proposition to go in with me and that I turned down the proposition?"

"Yes, I know all about that. But why have you changed your mind so?"

"Well, I was a little too selfish then. I knew I had a good thing and I wanted to keep it all to myself. I've found out since I can't do it. I've got to have capital."

"That's a frank confession—but nothing original in the idea. Usually we all need capital, if we want to accomplish anything in this business game."

"Oh, I could get along, but the grind would be too hard and it would tax me and unfit me for more important work. I've got to be free to work and a fellow can't do it with a millstone around his neck."

"Well, what is your proposition?" he asked laconically.

"First, I want to build a new plant—one that has ample capacity to take care of the business that I already have and which I can get. This plant will cost me $100,000. Now, I propose to organize a stock company and I do not propose to take in but a few selected stockholders."

"Why not make it a popular subscription scheme and take in everyone that wants to get in?" interrupted Rawlston. "You'd have a hundred fellows plugging your game instead of two or three."

"That won't do at all," I said, shaking my head. "I can control two or three level-headed business men but not a hundred."

"Oh, I see, you propose to be the controlling factor?"

"Why not?"

"Well, it seems that the fellows that put up the money should have something to say about how it shall be spent."

"Certainly. And that's why I shall have the controlling interest."

"Then you have got most of the capital, yourself?"

"Well, yes. You see first of all my biggest asset is myself—my ability to sell and to manage. Then, there is my shale bank and my options and——"

"Young man, I've always admired your nerve. I not only admire it but I have some faith in it now. I'll see you tomorrow morning and talk over things with you. But, remember, you've got to show me something if you get me interested very deeply."

The next morning Rawlston was in my office and I spent most of the forenoon going over my books and my contracts and telling him of my plans.

"I believe you have a safe business proposition, Cox," Rawlston said, as he prepared to leave. "It looks mighty good as an investment in itself, but to tell you the truth I see something else in it beyond that. I've got a pretty good acreage around in this neighborhood and if things go just right, I'll make a subdivision out of this land and build up a nice resident suburb."

For the next two or three days I was busy with conferences with Rawlston and two other of the local business men. The result of these was that we formed a stock company with me holding sixty per cent of the stock and elected as secretary and manager. Rawlston was made president and the other positions were occupied by the remaining two stockholders.

It took us several days to get our incorporation papers ready for filing with the secretary of state. One of my first steps after the incorporation was to call Simpson in and make him general plant superintendent and tell him to get busy with his organization.

By Spring we had everything in shape. My selling campaign had been planned out during the Winter and when the steam shovel took up its first scoop of shale things were going in fine shape.

I was a firm believer in publicity and during the Winter had entered into a vigorous campaign in Cleveland papers as well as those of some of the surrounding territory. The results were almost immediate and before the season had progressed very far we saw that we would have to branch out a little and we bought our first plant at Alldale—the first of a string which we operate today in various sections of the Middle West.

"Goldale" brick and their kindred lines today are household words with architects and contractors and I do not believe there is a prospective homebuilder that does not at least give them consideration when he starts to figure on his house. Publicity—properly and persistently done—did it.

Although nearly five years have elapsed since I first got into the brick game, I take personal pride in pointing to my plants as models. They were model to begin with and I have seen that they were kept up so.

I dread getting into a rut. That has been the bane of the clayworker. He draws himself into a shell and stays there. It does not take him long to get out of kilter with the rest of the world.

I refuse to get into a rut. I take a month off every year and visit other plants. I even go outside of the industry for ideas. I consider that month as an essential part in the proper management of my business. If I hear someone has got something I haven't I jump on the first train and find out about it, if I can. The secret of making brick at a profit is to make them as economically as possible. That is what I strive to do.

Before I conclude I want to say something about Young Simpson. I pinned my faith in him at the start, although he was a beardless ceramic student, and I have never seen a day that I regretted it.

One of the first steps he took when I made him general plant superintendent was to rig up a laboratory and install therein a fellow student. I looked askance at the idea at first, but it did not take me long to see the wisdom of it. We have rather a formidable general laboratory at Mauryville where I maintain general offices and the chemist in charge of that shop has a corps of men working under him —a student at each of the plants. This part of the organization has saved me thousands and thousands of dollars, besides giving me a much improved product and a uniform product. I firmly believe those fellows could make brick out of a rag carpet. They've worked some wonders, at least, out of mixtures that some of the so-called "practical" clayworkers said would not make mud pies.

In conclusion I want to say to those who have followed this recital of my personal experience in the brick business, that whatever you may think of this narrative, there is nothing impossible therein and what I have accomplished may be accomplished by anyone who will have the nerve to push a little.

(*Concluded*)

Questions and Answers

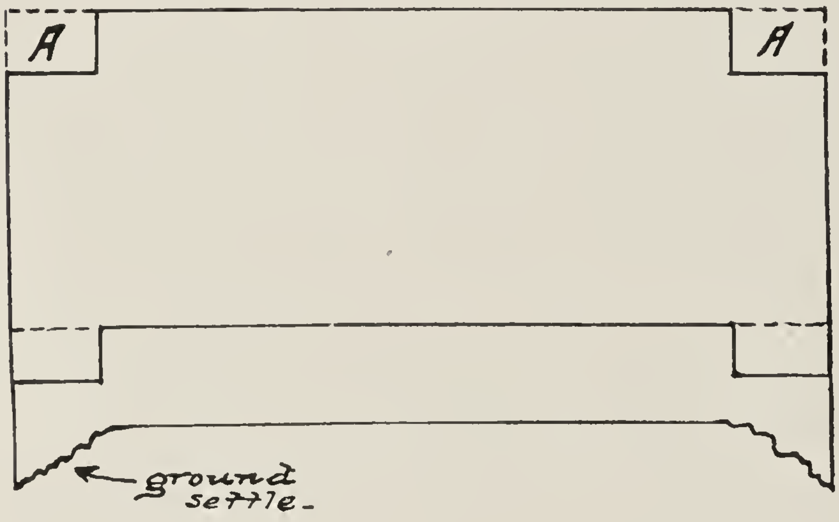
A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Kiln Slips—Can I Reburn?

268. *Georgia—I would, if I can, reburn my brick. I have put up a kiln for a plant in Alabama, the land being a very soft, loamy top-soil. We packed the soil with mauls, thinking it would be all right, but after burning four days, the headers of the kiln began to sink. This was an old-time kiln, with casing tied in with the kiln. The fourth night the kiln had a slide of four brick deep on the sides of the kiln. What about reburning those center brick and what process shall I observe?*

Without a more detailed description of this kiln, its condition and the fuel used, it is impossible to state a definite procedure to adopt to satisfactorily remedy the trouble. From your statement, however, we infer that "the old time kiln" referred to is the scove kiln, and, such being the case, as a general proposition it might be suggested that the scove wall which has settled be rebuilt on top and the space (A—see sketch), caused by the sliding brick be filled up level with the top of the kiln, using ashes or clay. The accompanying sketch illustrates our idea roughly of the condition of the kiln, the dotted lines at the upper corner representing the position of the walls before the slip, while the solid lines indicate the final condition. The dotted line in the lower part of the sketch indicates the original position of the top of the flue arch, while the solid lines represent the top of the arch after the slip. As a result of the slip, we assume, of course, that the arches have also fallen. This being true, assuming that wood is used as fuel, firing should be resumed by throwing the wood into the flue to about the center of the kiln, the fire starting from this point. If, however, coal is used as fuel, grates are undoubtedly used, since this is an up-draft kiln. In this case it would be well to dig away the fallen fire box and rebuild it a little farther into the kiln where the arch is sound, and firing carried on as usual. Reburning does not hurt your brick, but on the other hand, may improve the quality.



Wants to Know How to Raise Capital.

279. *Pennsylvania—What is the best method of raising capacital for a new brick plant?*

First of all to interest someone in your project who has capital. If, after a careful survey of your territory you find there is a market, that transportation is reasonably good, that you have the right sort of raw material (clay or shale) in sufficient quantities for the manufacture of whatever product you expect to make, and that the clay is accessible—that is can be mined and conveyed to your plant economically, you are in the position to interest someone who wishes to make an investment. Many promoters, however, fail to make the above analysis—or at least in as thorough a manner as is necessary. There are several methods used in "interesting capital." One of the most common is to visit personally men who have money to invest and lay before them your proposition. In this case you must be thorough in going into every detail, not forgetting to be absolutely truthful in every matter, as capital is most suspicious and shys at the first sign of insincerity. If you can interest one man to take some stock you have broken the ice and made it easier to approach another. Another way, in larger cities, is to go to a broker or a bond house that makes a specialty of promoting new industries and lay the proposition before it. For a certain fee or percentage a broker will undertake to sell your stock. Whatever methods are employed, however, bear one thing in mind: First analyze your proposition so that you can present every phase of it and then do it honestly and sincerely.

As to Street Car Advertising.

276. *Minneapolis—We recently contracted for exclusive space in the "Twin Cities" (Minneapolis and St. Paul) street car system, it being our idea to start quite a campaign in behalf of brick and clay products. We would like to have you advise us whether or not you have any electrotypes of mantle, garden walls or house designs, small enough to be reproduced on a card 11x21 inches. In the event you do not have them but know of some company that might permit us to use them, advise us at once. We believe the advertising we have in mind will do ourselves a lot of good and the other dealers as well. We also would appreciate any suggestions you might have to offer relative to different kinds of advertising suitable for street car space.*

We have no cuts or electrotypes suitable for the purposes mentioned, nor do we know of any one that has. Why not have some advertising agency in your city design your cards? The expenditure for the advertising warrants doing the matter properly. Photographs rarely lend themselves to street car advertising unless the subject permits of simple treatment. In other words what ever illustration is used should be large enough to be "taken in at a glance." A photograph of a man's glove, or a shirt, or a can of "Dutch Cleanser" or a cake of Ivory soap may be seen from any point in the car. A photograph of a seven-room bungalow with floor plans, has so many details to it one would have to have a more closer inspection than a seat in a car would permit to get a clear idea of what is attempted to be shown. Our suggestion is to go to some advertising writer or agency and state first of all what you are seeking to do. You want to create an INTEREST in burned clay products and then a DEMAND and you want to have that demand directed in YOUR way. The campaign should be mapped out in about this way: (1) A series of cards telling what burned clay really is. This might include probably not less than three or four cards, changed as often as the terms of your contract permit—at least once a week. Twice a week would be better. (2) A series of cards on fire loss in your cities with brief statistics showing the actual facts, closing with the moral of using burned clay goods as a fire preventative. This series may also take in the lesson of the insurance policy—that is the difference in cost when wood and clay are used. (3) A series of cards showing HOW burned clay may be used. This demonstration would take up home building and all sorts of construction work. In this case it would be better to always cite a particlular case. For instance: Show a cozy brick home. In good display type point out "That a Brick House Like This—Absolutely fireproof, frost-proof, water-proof, can be built for $3,000," or whatever the price may be. Then show that frame construction actually costs more and tell why it is not so satisfactory.

If you will outline a campaign to some expert advertising writer like this, submitting him all the data you have along this line, he will be able to prepare you a series of cards that will be of some real value.

One thing to guard against is crowding your card with too much reading matter. Twenty-five or thirty words of reading matter is about the limit for a card. If your story can be told in less, that, much the better. A successful car card is the one that tells what you want to say at a *glance*.

Where are the Tuttle Brick Made?

290. *Massachusetts.—Can you inform me where the "Tuttle" brick are made? I believe they are made in New York State, but do not know just where.*

The "Tuttle" common brick are manufactured by the Tuttle Brick Co. of Middletown, Conn. There is no brick of similar name made in New York that we have record of.

Wants to Know How to Make Brick.

274. *Alabama—Advise me where I can get a book on the subject of making brick.*

"Modern Brickmaking," by Searles, and Seger's "Collected Works" are two of the best publications on this subject. Both are listed by our "Book Department," the former at $5 and the latter at $3.50, postpaid.

Wants Permanent Kilns.

280. *Michigan—We contemplate building permanent kilns at our plant to be used in burning brick and tile. As this is a new method to us we are unfamiliar with the different kilns now in use. Can you furnish us with the names and addresses of the companies who install these kilns which are considered the best in your experience?*

The question of kilns cannot be settled with a few words of advice. To begin with the type of kiln and the method of using that type, depends entirely upon the clay and the product to be made, and the capacity. There is only one way to determine the proper conditions and that is to have some competent engineer or kiln expert to visit your plant and look over the existing conditions. Generally speaking the down-draft kiln is a satisfactory one for brick or tile. The continuous tunnel kiln—and there are several types of this, is another satisfactory method, but to say which best serves your purpose would be foolish unless we had some idea as to the actual conditions in your plant. Why not turn to our advertising pages and read studiously all the ads bearing on the subject of kilns and burning? Then sit down and write to these advertisers and tell them just what you want. We recommend every advertiser in this journal, as we do not accept advertisements only from reputable firms who manufacture practical machines and equipment. We have a service bulletin which we issue at regular intervals and which goes to the manufacturers. We will state your wants in the next issue of this and undoubtedly you will hear from many of the engineers, kiln builders and manufacturers.

As to Vitrified Paving Block.

278. *New South Wales—I have received a copy of your magazine Oct. 7, 1913, which contains much information as to paving brick. Can I trouble you to reply to the following queries: (1) Does the whole of this article apply to the vitrified brick? (2) Is this class of brick the best for roads? (3) Is it still being used largely in the States? (4) What is the distance of the longest road with this brick in the States? (5) What is the longest time this brick has been down? (6) When the brick is taken up can it be reversed and relaid? (7) Is the blue vitrified brick mostly used? We have an abundance of shale (good brick-making material). (8) Is this class of brick difficult to turn out? I think it would require more burning than the ordinary common brick. (9) Approximately, what price does the vitrified brick sell at in the States? Any information you can give me on the vitrified brick question I shall esteem it a favor.*

(1) We do not quite understand this question. The issue referred to contained a report of the annual convention of the National Paving Brick Manufacturers' Association at Cleveland and also several special articles on vitrified paving block, one of the most important of which was the "Truth About the Wayne County Cement Roads." (2) Unquestionably vitrified paving block is the ideal material for permanent road construction. (3) Yes and the yardage is increasing every year. (4) We do not have the exact figures. but there are many roads built of brick that run uninterruptedly for a hundred or more miles. (5) In European countries there are brick roads laid 500 or more years ago. In the United States there are roads built under modern construction nearly half a century old. There are streets in Terre Haute, Ind., Cleveland, Ohio, and other cities that have been in constant use, without the expenditure of a cent for repairs for more than a quarter of a century. (6) Yes. (7) Many of the better quality American paving block burn cherry red. In other localities a deep purple is considered the proper color. In still other localities a deep blue is the sign of a properly burned block. In other words the question of color depends entirely upon the nature of the shale. One shale will burn blue, another purple, and another a cherry red. The only requirement is that whatever the color it must be "deep," as the dark colors usually indicate "hard" burning and a paving block must be "hard" burned. (8) No more than any other brick. To properly manufacture any brick means surmounting many difficulties. Perhaps more pains must be taken in culling the block to prevent an imperfect product getting into a street or road. American manufacturers recognize the necessity of selling only a superior quality. Of course the culls can be and are used as builders and, are not a loss by any means. To obtain vitrification in paving block requires, naturally, more heat and the degree of heat depends very much on the clay or shale, as different clays require different temperatures. (9) Paving

block prices in the United States vary. The cost problem is different in one locality from another. Then there is the shipping costs and all the other items. Paving block prices range from $15 a thousand to $25 a thousand. It is impossible to give a fair answer to this question unless some particular locality or state is mentioned.

As to Mixing Glazes.

289. *Oklahoma.—I have received your book, "Manufacture of Glazed Brick," and it is a very fine book but does not tell me how to mix the materials for glazes, and I wish you would kindly tell me where I can obtain that will tell me how to mix these different glazes, what chemicals to buy and where to buy them.*

"The Glazer's Book," by Raes, listed by our Book Department at $1 postpaid, is devoted almost exclusively to slips and recipes and probably is what you require While it gives the different formulas and tells how to use them, it does not tell you where to buy the chemicals. If you can not get the materials in your home town, any of the leading chemical supply houses in the larger cities can supply you with what you require.

Making "Dubltex" Brick.

277. *Indiana—In your June 15 issue of your magazine, your associate editor, Frederic W. Donahoe, had an article on the "1913 model," or "Dubltex Brick," which he originated. We want a sample of this brick and if you can send it to us we will be greatly appreciative.*

We have complied with the above request and since our correspondent has written that he has been successful in reproducing this new texture. We take this occasion to warn our Indiana friend, however, about the use of the word, "Dubltex," as it has been registered in the United States patent office as a trade mark by the Everhard Company, of Massillon, Ohio.

Steals Kiln Records.

285. *Washington—Would like your advice in the following matter: A fireman in our employ was found intoxicated while on duty. A man was put in his place and he went off on a protracted spree. On "recovering" he came back in a dictatory mood. Our foreman told him his services were no longer required. Later, so his successor says, he came back and stole our kiln records. What is usual in cases of this kind? We are minus the kiln records.*

It is said troubles never come singly. This is particularly true in a clay plant and even more so around a kiln. If you know that the burner stole your records why not swear out a warrant for him and cause his arrest on a criminal charge. If someone entered your office and rifled your safe you would take that step. Your kiln records have a monetary value and the thief is amenable to the law.

Wants Karzen's Paper in Full.

275. *Washington—In the Dec. 16 issue of "Brick and Clay Record" we find a somewhat extended reference to a paper read before the American Ceramic Society by S. C. Karzen on the subject of "Economic Furnace for Tunnel Drying." We would like to have the full text of this paper, if possible, and, if you can advise us how to proceed to get it, we shall greatly appreciate the favor.*

The paper appears in Vol. XIV of the "Transactions," a copy of which may be obtained through the "Book Department" of this journal or by applying to Prof. Edward Orton, Jr., secretary of the Society, Columbus, O. The price, postpaid, is $5.50 for paper cover; $6.25 for cloth binding. We might add, however, that the paper was printed in full in the Dec. 16 issue, as usually we do not publish abstracts. The "Transactions" does carry the discussion that followed which should prove of value to our Washington correspondent.

As to a Septic Trap.

286. *New Jersey—Some time ago we read an article in "Brick and Clay Record" about "How to Build a Septic Tank" and the parties who manufactured it were somewhere in northern New Jersey. Can you give us any further information on this article?*

You probably have reference to the article on "Sewage Disposal—How to Build a Plant for the Country Home," which appeared in the Nov. 18, 1913, issue. No reference was made to any manufacturer. The Iowa State College Engineering Experiment Station at Ames, Iowa, has issued a bulletin covering the details of this construction, and we advise you to write to it. The article by Mr. Brooks in this magazine, however, was very complete.

Wants a Honolulu Address.

269. *New York City—In your Dec. 2 issue, in the Hollow Block Department, mention is made of a building to be erected for the Bishop Estate, Honolulu, in which it is proposed to use terra cotta. The architect is given as O. Y. Traphagen. Will you please advise how we may get in touch with the persons interested in this building?*

A second item in the San Francisco Trade Review on this subject appeared in the Dec. 16 issue, page 1274 and supplied the necessary information. Communicate with the Bernice Pauahi Bishop Estate, Honolulu, T. H.

Information Wanted.

238. Texas—Adam Jack, Box 82, Nanaimo, Vancouver, B. C., offers to supply 238 Texas with all information he seeks on continuous kilns and encloses a letter which he asks us to forward to the inquiry correspondent. We have done so.

238. Texas—George Ogan, 108 Logan Avenue, Danville, Ill., asks for and has been supplied with the address of 238 Texas.

230. Illinois:—I am in a fairly good position to answer the above in the Dec. 16 issue of your journal. Both Kagit and Whatcom Counties in the State of Washington, offer excellent opportunities for the tile manufacturer; particularly the first mentioned county. In both counties there is a vast amount of fertile land, all of which is to be drained. There are men anxious to step in to commence the making of drain tile, but the difficulty to get the necessary capital has handicapped them hitherto. If your correspondent has got the capital, I think he will find an excellent field for explantation in this region.—Tom Brown, Sumas, Wash.

230. Illinois.—Will you kindly inform the party making inquiry No. 230 in Dec. 16 issue, that if he will write me personally I will give him all the information on this subject he desires?—T. H. Essig, 1212 So. "I" St., Tacoma, Wash.

235. Indiana.—I note your letter in Dec. 16th issue of "Brick and Clay Record," in questions and answers department. I am very much interested in your location and will be pleased to hear from you as to what you may have.—V. C. Morrison, Franklin, Ind.

235. Indiana—We have received several inquiries for the address of this correspondent who expressed a wish in this department, Dec. 16 issue, of interesting someone in increasing the capacity of a plant that has an ideal location. D. H. McDougal, North Robinson, Ohio; W. C. Kirkpatrick, Chamber of Commerce Building, Chicago, and W. M. Fox Tile Co., Obion, Tenn., each send letters to be forwarded. We have complied with these requests.

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

Effect of Weathering on Color and Density.

The action of the atmosphere on raw clay, known as weathering, is a positive factor in the color and density of the product. If it were possible to use clay fresh from the mine—every carload being used within the same number of hours after it was picked or blown out of its natural bed, the ware would be uniform, if the same number of heat units were applied to it under the same conditions, at each burn. The fact, however, that a varying amount of weathering is given each batch, either because the face of a bank being stripped, together with some of the shale or clay that has been covered, or that part surface clay and part of the underlying clay is used at one time. This makes clay uniformity—which means at least a partial uniformity in the finished product—impossible. The atmospheric action diminishes each day after the clay has been exposed to the weather, the exact time varying with the amount of free lime and other deleterious substances that the clay contains. When the exact time is determined, the clay becomes practically uniform, and at least one cause of trouble is eliminated. A storage system, so arranged that moisture could be added to the clay in dry weather, so giving approximately even weather conditions, would do much to improve the product of plants that now have trouble with color and quality changes that are, seemingly, unaccountable.—D

Melting Point.

The melting point of the average fire clay is 2,831 to 3,137 degrees.

Coal Consumption in Continuous Kilns.

No more than 350 to 450 lbs. of coal per thousand brick should be consumed by a 10-chamber Hoffman type continuous tunnel kiln.

The Man With the Shovel.

A common laborer and a $1.75 scoop shovel in your machine room will keep the floor clean of tailings and give you a profit on his cost.

Get a Good Superintendent.

Trying to run your plant without proper mechanical supervision is like trying to run your office without a bookkeeper—you never know just where you are or what will happen next.

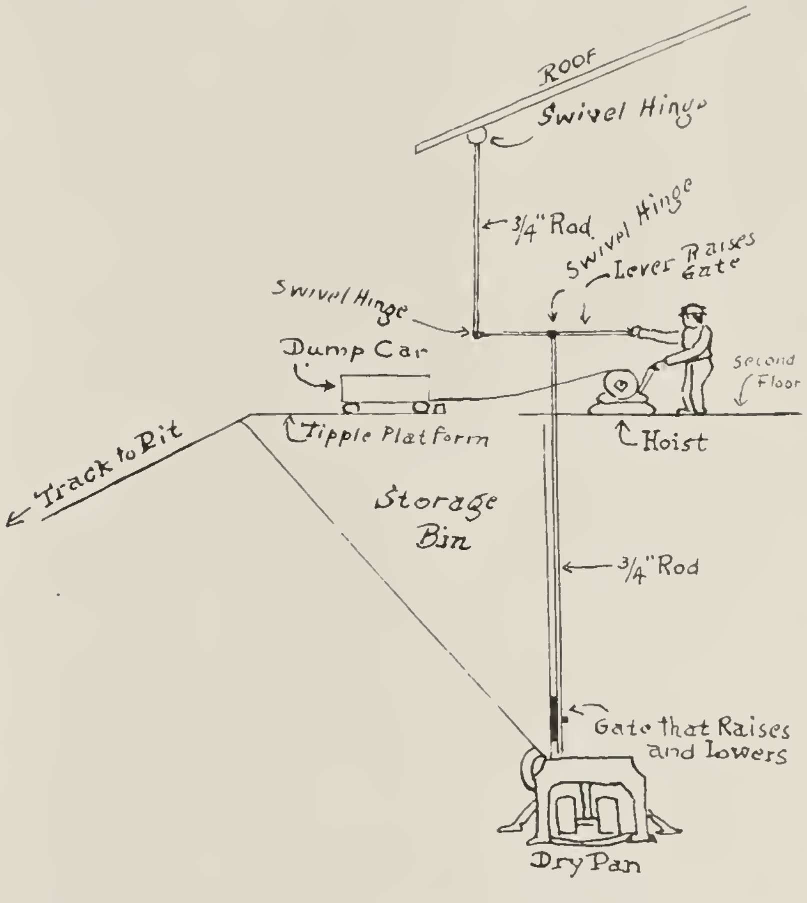
Keeping Kiln Crowns Watertight.

Keep your kiln crowns in repair and watertight. This may best be done by going over them, on the outside, with a broom dipped in a solution of Portland cement and water, that has a consistency only slightly thicker than pea-soup. It should be done after every third burn, at least, and arrangements should be made to do this, whether the

THIS IDEA WINS $5 PRIZE

N. Hermes, superintendent of the Redcliff Clay Products Co., Redcliff, Alberta, Canada, is the winner of the $5 prize, this issue, for the best suggestion offered for Jan. 20. His suggestion follows:

The enclosed sketch shows how one man can feed a dry pan and hoist the shale. The lever to pan clutch should be turned straight up, and an extension put on it at run through a slot in second floor so operator can shut the pan off when it is necessary. Back side of bin is built sloping so shale will always slide to the gate. The bottom of bin, next to the pan, should rest on the cross rod of pan which runs from one "A form" to the other. The bin end-gate should be built of heavy 2-inch lumber. Gate must be made to slide easy. It is pulled up by the lever, and its own weight brings it back when lever is released. I have built and operated several of these, and it is a labor saver where only one pan is run.



Have you a better idea? Send it in. It may help a fellow clayworker and at the same time win the $5 prize. You are sure at least of getting $1 for your trouble. Address: Superintendent Department, "Brick and Clay Record," Chicago.

kiln seems to need it or not. A heavy rainstorm coming when a kiln is cold, is apt to leak through the crown and make the entire inner surface of the kiln wet. This will prolong the watersmoking period and is apt to affect the color of the ware—in some cases causing whitewash.—D.

Paint Your Dryer Doors.

Dryer doors should be given a coat of good stack paint. It will prevent rust and protect the iron from the gases and dampness of the dryer. The paint should be applied about twice a year.—J. A. L.

Warping of Wares.

A swelling clay column usually warps the finished product from an augur machine. This swell is caused by uneven pressure in the die. The remedy lies in changing the die to produce even pressure.—J. G. W.

To Burn a Hoffman Kiln.

The proper way to handle a 10-chamber kiln of the Hoffman type is to have one chamber drawing, another setting, three cooling, one behind the fire, one in full fire, two ahead of the fire and two watersmoking.—J. G. W.

Testing of Fire Clay.

A test intended to determine more clearly the practical value of fire clays has been devised by Messrs. Bleininger and Brown at the Pittsburgh Testing Laboratory. In this method a fire brick is placed on end under a load of 50 lb. per square inch, in a specially designed gas furnace and subjected for one hour to a temperature of 1,350 deg. C. It is recommended that the brick should show no marked deformation under test other than a shortening of not more than 1 in. in the original length of 9 in. The test is said to give consistent results under conditions approximating to those obtaining in practice, and may be commended to the attention of authorities interested in the standardization of methods for the testing of fire clay and fire clay products.

New Type of Drain Tile.

All drain tile made, so far, has always been round, and a somewhat porous material. Inasmuch as drain tile is used to collect water under ground, it seems rather a poor idea to use the same material on the top of the tile as in the bottom. The function of the top part of the tile is to collect the water from the outside, while the bottom part of the tile is used to carry off the water. Inasmuch as the bottom is porous there is also a chance that all water is not carried off, but is again filtered through the bottom to lower levels. The drain tile, as shown in cut, is made of two parts, the top part is made of the regular drain tile body, and being simply an ordinary drain tile cut in two pieces, while the bottom part is made of harder burned material, and can also be salt-glazed. It will cost a little more to lay such tiles, but it would seem that this new system has many advantages over the old drain tile style.—Deut. Topf.

Salt Glaze for White Enameled Brick.

Contrary to popular opinion white enameled brick can be and are being made with a salt glaze. It is colorless and transparent and will stand both the acid and time tests. Salt-glazed brick can be burned in an open fire and at one firing of liquid fuel instead of mineral fuel is used. Coal, of course, makes too much ash or dust which spoils the brick. I have made a splendid white glaze in the ordinary salt glaze kiln, inside of gullies and other goods which could be turned upside down on the top of sanitary pipes, so that they are protected from the dust. As to the cost, if compared with that of burning muffle kilns, it would be found less with oil. This system of burning and glazing would fill in the missing link of the glazed brick industry. We know that glazed brick have not so far come up to that standard of excellence which is required by architects and engineers. This is because glazed brick can only be made where the material is of the very best, so that it will stand the fire necessary to flux a hard enamel, and that material, from a builder's point of view, is poor stuff. Again, the oil-burned white and colored salt-glazed brick would be burned to a vitrified and non-absorbent body, and could be glazed a natural red or brown on the back, top and bottom, while the face would be all that is required, and as good as anything made to-day in the glazed brick line. This brick would be non-absorbent, thoroughly vitrified, and have a glaze on it that would not be affected by anything affecting the present glazed brick.—J. G. W.

Prize Problem Contest

[This department was inadvertently omitted in the Jan. 6 Issue.—Editor.]

In each issue of "Brick and Clay Record" a problem will be propounded to the readers—usually an actual experience of some clay worker, who, confronted with certain conditions, sought a solution and succeeded, or, having failed, still waits a Moses to lead him out of the wilderness. A special prize of a paid-in-advance subscription to "Brick and Clay Record" for three years will be given for the best answer.

PROBLEM NO. 3:

What would you do if you had spent all your life in the manufacture of clay products, and now at the age of 56 years, having a 20,000-a-day plant of uncertain value as your sole asset and being forced to admit that you have made a failure at the game, and your only son, 20 years old, suddenly evinced a desire to follow in your footsteps and learn the business? With your own failure before you, would you encourage him in this desire or urge him to take up some other vocation?

Send in your answer to Problem No. 3 so it will reach this office before Jan. 28. Address your letter to "Prize Problem Contest Editor, Brick and Clay Record," Chicago.

PROBLEM NO. 4.

What would you do if you had a three-kiln plant modernly equipped as far as it went, with an inexhaustible bed of clay that burned the finest of hollow ware and there was little or no competition and you had a demand in your local community for five times as much as you could make—what would you do if such a condition actually existed and you did not have the capital to swing a larger project?

Send in your answer to Problem No. 4 so it will reach this office before Feb. 11. Address your letter to "Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 5:

What would you do if your fire brick, which always had burned uniformly and without trouble, suddenly came out of the kiln badly cracked? The cracks usually are on the edge of the brick and run towards the center for about one or two inches. The same clay is being used, the same methods of manufacture, the same dryer, the same kilns and the same men are utilized in the production as heretofore. The brick from one part of the kiln do not crack any oftener than in another part.

Send in your answer to Problem No. 5, so it will reach us before Feb. 20. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

Problem No. 6 will appear in the Feb. 3 issue and new problems will be published in subsequent issues. Answer to Problem No. 3 will appear Feb. 3; to Problem No. 4, Feb. 17; to Problem No. 5, March 3.

ANSWERS TO PROBLEM NO. 2:

The following answer is awarded the prize on Problem No. 2. Mr. Kiger offers a very practical solution which combines efficiency with economy:

Suggests a Tail-Rope System.

I would first try to elevate my track over the storage bin high enough to give sufficient speed to the empty car going down to carry it to the face of the clay. This would give larger storage capacity. But if this were not practicable I would install a tail-rope system. This system is to use an ordinary cable for hoisting and attaching a smaller rope to the rear end of the car which will pass around a sheave at lower end and return to the drum which will be used in pulling the car back to the pit. The tail rope should be twice the length of the hoisting rope. This system would not require an extra man to hitch the cable, as this could be done by the men loading the cars.—H. G. Kiger, 302 West 7th St., Fulton, Mo.

Believes Mule Most Economical.

For a 40,000 daily capacity brick plant it would be the most economical to continue to use a mule or horse to pull the cars to the incline.—Alf. Satre.

Dispenses With Mule.

I would say dispense with the mule and instead use continuous rope haulage driven by same power that hoists them to the storage bin.—E. H. Bradley, Layton, Pa.

Locomotive—Not a Mule.

Problem No. 2 in your issue of Dec. 2, Page 1150, is exactly my situation. I am preparing to get away from the mule and hoist by installing a *train* of *side dump* cars, propelled by an industrial locomotive, operated by one man—my object is economy as well as speed.—C. J. Everhard, 2046 East 93rd St., Cleveland, O.

An Aerial System for This Contestant.

I have no use for the mule, he is entirely too slow for the modern brickmaker. The use of a mule would necesssitate the use of tracks, and if the plant is located in the northern part of the States, would require considerable attention in the winter time, to keep the tracks free from snow and ice. I would use an aerial conveying system, to be operated by one man, whereas the present plan uses two men and the mule.—F. E. O., Newell, W. Va.

ANSWERS TO PROBLEM NO. 1:

The following answers to Problem No. 1 did not reach this office in time for publication in the Dec. 16 issue but as many of them propose solutions that may be of value to our readers, we give them space. Problem No. 1, it will be recalled, cited the case of a plant that had difficulty in getting the proper mixture. Here are the answers referred to:

Without knowing the local conditions it is very hard to tell the right thing, but assuming you are making common brick, I would suggest to work the layers separately. That is, first go in and mine the 20 foot layer and burn it up to Cone 0.9. Afterwards take the 30-foot layer and burn it up to Cone 0.3. In this way you should not need to have any more burning troubles—and the mixing expenses also are put down to a minimum.—Alf. Satre, Ceramic Engineer.

My plan would be to work the top 20 feet first, then go after the 30 feet; by so doing you overcome all trouble and expense of mixing the clay.—E. H. Bradley, Layton, Pa.

In answer to Problem No. 1, in issue of December 2, will state how I overcame the difficulty, when once I faced it, and experienced most satisfying results in obtaining a uniform mixture when shooting at pit. Do not shoot from top as shale will tumble down in a pile in front of bottom. Thus the top is loaded on cars separately from bottom, and you have one day's run entirely from top shale, and next day's all from bottom. So you have two qualities of brick to perhaps go in same kiln, and of course one gets a wrong temperature. Keep pit faced, as nearly as possible, straight up and down. Take a six-foot coal mining auger, 1¼ in. twist and split drill bit. Drill a six-foot hole two feet up on face of pit, letting it pitch downward until about level with bottom. In charging shot "spring" hole enough to get required amount of powder well in back of hole. This method will knock as much shale as a 30-foot one from top and two men can do it in twenty minutes. Do most of shooting from bottom and top will fall off and mix sufficiently. Any other drill will do but this one can be had at any hardware store handling mining tools. The split bit will have to be put on after purchase and receive a filing temper so it can be filed when dull. This bit, properly sharpened, will bore faster, by actual test, than a steam drill. If this is not plain shall be glad to endeavor to make it so.—T. A. Hicks, Rockmart, Ga.

Judging from these answers it would seem that there are more ways than one to solve this problem.

Sewer Pipe Company's Effort to Convince Taxpayers.

The W. S. Dickey Clay Manufacturing Company, of Kansas City, has started a newspaper campaign for the purpose of educating the public on sewer construction. Naturally the public seldom buys sewer pipe, but the placing of certain facts before the people will have a moral effect on the public officers who are called upon to take care of this kind of work for the people. The taxpayer will undoubtedly profit in many ways from this information he will secure through this broad educational work.—Printers' Ink.

Co-operative Brick Campaign.

The National Paving Brick Manufacturers' Association has begun a campaign of advertising in favor of the use of vitrified brick for paving purposes. It is said brick has a number of dangerous competitors in the paving field, asphalt and wood-block being among the leaders, and the association has decided to use advertising as a means of maintaining the prestige of brick. The engineering journals, particularly those reaching municipal authorities, are being used. Will P. Blair, secretary, has his offices in Cleveland.—Printers' Ink.

SECOND HAND MACHINERY

Brickmakers, if you have some misfit machines — machines that have grown too small for your plant — sell them through our Classified ads and take what you get and use it toward buying a larger and more modern machine. Classified ads are watched by bargain hunters.

New Methods and Processes

A. Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

Contributing Editors: Prof. Charles F. Binns, Ellis Lovejoy, C. E., Anton Vogt, C. E.

MOST of the steam consumed in a sand lime brick plant is that required for operating the hardening cylinders. This amount varies evidently with the size and construction of the cylinders, their insulation, their mode of setting, the season of the year and local conditions.

At the plant in question, where the steam consumption was investigated, all machinery was electrically driven, the power being obtained from an interurban sub-station. The steaming boilers were two in number, of the two-fire tube type, having heating surfaces of 96 and 121 sq. yds. respectively, and operating at a maximum steam pressure of 8.5 atmospheres. With the exception of that used in operating the feed pumps and that lost by condensation and leaks, all the steam generated was used in the hardening cylinders and lime slaking drums. The slaking drums, 12 ft. long and 7½ ft. in diameter, were of about 4,000 gallons capacity and when in operation were charged with 1,100 pounds of burned lime and 80 gallons of water, 1.3 cu. yds. of quartz sand being added at the same time, the water being sprayed in by means of an injector. The slaking process requires about half an hour, and the steam generated at the same time may produce a pressure in the drum as high as 90 lbs. per sq. in., depending upon the proportions used in the mixture. In this connection a small amount of live steam from the boilers is necessary, viz., that required for operating the injector, and, during Winter, that used for preheating the drum and its contents. In operating the hardening cylinders which are about 56 ft. long and 6½ ft. in diameter, and holding from 11,000 to 11,500 brick, each is filled, the steam turned in and a pressure of 120 lbs. per sq. in. maintained for 10 hours.

The steam consumption in the hardening cylinders divides itself into two parts: (1) that used for attaining a pressure of 120 lbs. per sq. in. which, depending upon the size of the cylinders and their method of operation, requires from 30 minutes to one hour; and (2) that necessary for maintaining this pressure for 10 hours.

In the plant under investigation there were 10 hardening cylinders, each of 13,500 gallons capacity, built in a battery, so that the heat lost by radiation was a minimum, each being connected to the live steam line over head about 220 ft. long and so arranged that any two desired could be connected for a transfer of steam from the one to the other. As a rule the operation of the hardening cylinders was so managed, that the hardening process was being completed simultaneously with the beginning of the process in another; in this way the newly filled cylinder can be brought up to a pressure of from 20-30 lbs. per sq. in. by the steam from the one just finishing.

The tests were conducted on a warm Summer day, only the boiler of 121 sq. yds. heating surface being in operation. Care was exercised that all the water accounted for as feed could leave the boiler only as steam.

The steam consumption of the hardening cylinders was determined under the following conditions:

1. Slow rise of pressure from 0 to 120 lbs. per sq. in.
2. Slow rise of pressure from 20 to 120 lbs. per sq. in.
3. Quick rise of pressure from 0 to 120 lbs. per sq. in.
4. Maintaining the pressure in (a) one, (b) two, (c) three hardening cylinders.

The results obtained show that it requires practically the same amount of live steam to increase the pressure from 0 to 120 lbs. per sq. in., regardless of the rate of increase. To maintain a pressure of 120 lbs. per sq. in. in the hardening cylinder, using only live steam, it was found that 6,600 pounds were required, making the steam consumption about 587 pounds per thousand brick. To this amount must be added, however, the steam necessary for maintaining this pressure. This was found to about 352 pounds per thousand brick, which varies evidently with the degree of heat insulation of the cylinders making a total of 939 pounds of live steam per thousand brick.

Using waste steam from one of the other cylinders to bring the pressure up to 20 lbs. per sq. in. before introducing the live steam, lowers the steam consumption to 763 pounds per thousand brick. Assuming that it costs $.40 to generate 1,000 pounds of steam, the cost of the steam consumption in the hardening cylinder is $.375 per thousand in the first case and $.305 per thousand in the latter case, where waste steam, as well as live steam, is used.

Crushing Strength and Porosities of Clay Products.

Inasmuch as structural clay products are rarely subjected to their maximum load in practice, the crushing strength in itself is relatively unimportant. But since crushing strength is frequently called for in specifications, it is usually the aim to secure the strongest material regardless of what the conditions of service may be.

In a paper read before the American Ceramic Society (Vol. 14, p. 292), Mr. Geo. H. Brown describes an investigation made by himself in an endeavor to correlate crushing strength and porosities of clay products.

Preliminary tests were made on a No. 2 fire clay to ascertain what shape the test piece should be to give the most comparable results. The clay was fashioned into 3½-in. cubes, bars 5¼-in. long by 3½-in. square and cylinders 5¼-in. long by 3½-in. diameter. It will be noticed that the length of the bars and cylinders is 1½ times the diameter. In testing, this ratio has been found to give good results. Of these shapes, the cube proved most satisfactory in all respects.

Having selected the cube as the most satisfactory form of test piece, the investigation was continued, using six clays —2 shales, 2 fire clays and 2 surface clays. The cubes after being slowly dried were then burned to various temperatures, there being an interval of two cones between each burn, starting at cone 08 and continuing until the clay had reached its vitrification limit.

After the porosities had been determined, the test pieces were then subjected to the crushing test in an Olsen machine of 600,000 lbs. capacity.

Of the six clays tested, the shales developed the greatest crushing strength, with decrease in porosity. The behavior of the two shales is, however, very dissimilar below a porosity of between 8 and 10 per cent. In one case, the strength increases remarkably from this point while that of the other shale decreases abruptly. This is caused by the difference in behavior of the two shales in vitrification, No. 2 having the shorter range. This variation illustrates the danger in specifying too low a percentage of absorption or porosity, as both clays do not develop maximum strength at the same low porosities.

The highest crushing strength shown was that of a cube made from shale No. 1, burned to practically zero porosity. With an area of 9.42 sq. in., this piece stood a maximum load of 399,100 lbs. or 42,367 lbs. per square inch. The crushing strength of this piece was considerably above that of the other members of this series.

Manufacturing Refractory Articles of a Dense Structure.

A German clay worker has patented a new process by which he manufactures highly refractory articles like tubes, muffles and crucibles, making them of a dense, vitreous structure.

Heretofore, most refractory bodies have been of a porous nature, and consequently pervious to gases. The use of glazes to make them impervious is not satisfactory, and mixtures which mature to a dense body in themselves are as a rule not refractory.

This new method consists in using a material which burns dense, *per se*, and covering it inside and out with a porous refractory coating, which can be of very slight thickness compared to the weight of the walls of the object which it covers.

The base material, for example, can be made of a hard porcelain mixture, or a magnesia body compounded with fluxes, etc. The outer layer can be made of alumina with a little clay added or of magnesite, with a small amount of bonding material.

In using this method, the object is made in the desired shape from the base material, porcelain for example, and biscuited at a low temperature, then dipped into the material, as a slip, that is to be used as the coating, and finally burned to the maturing temperature.

Obtain Great Heat in Melting Quartz.

For some years past scientific men have been striving to produce heat fiercer than any temperature which has been obtained in the past, says the Kansas City "Journal." The greatest heat ever developed by the agency of man was obtained by Sir Andrew Noble, who exploded cordite in closed vessels, so that a pressure of fifty tons to the square inch was registered, and a degree of heat never previously recorded.

The highest temperature reached in fuel furnaces for practical purposes is between 1,700 and 1,800 degrees Centigrade, and at such a heat fireclay and porcelain are melted. Then we come to the flame fed with hydrogen and oxygen, or oxygen and coal gas; by these means a temperature of 2,000 degrees Centigrade may be obtained

A new industry solely dependent upon the employment of great heat is that of melting quartz. This mineral, fused by the oxy-hydrogen flame, is converted into tubes and flasks and other vessels for chemical purposes. These vessels are absolutely inert, and may be heated hundreds of degrees higher than is possible with glass; they may also be plunged at such heat into cold water without injury.

It has been discovered that by whirling a centrifugal wheel at high velocity in the combustion chamber of a furnace the nitrogen is cast to one side, while the oxygen is concentrated, and in this way a brighter flame and greater heat are obtained. A similar appliance used during the combustion of coal in a furnace enabled a firm of paper makers to save 27 per cent of their coal bill by the elimination of the hydrogen gas formed in combustion.

But most remarkable of all the phases of the utilization of extreme heat is the discovery of the welding material known as thermit. The inventor discovered that aluminum is very much attached to oxygen, and holds it closer than a brother. Therefore, he mixed granulated aluminum with oxide of iron, for the lighter metal wants oxygen, and the oxide of iron has it to give. A small quantity of magnesium filings was placed on top of the mixture, and a storm match applied, and immediately a mass of molten iron was seen boiling at a temperature of 3,000 degrees Centigrade—much higher than any temperature in ordinary use.

Stoneware Glazes for Cones 2—6.

According to Dr. E. Berdel, a well known German ceramist, the following glazes which mature at a temperature corresponding to Seger cones 2—6, have proved satisfactory in practice:

(a) Feldspar	84 parts
Marble or whiting	40 parts
Red lead	103 parts
China clay	13 parts
Quartz sand or flint	48 parts

(b) Frit together:

Feldspar	140 parts
Cryst. borax	96 parts
Marble or whiting	25 parts
Red lead	57 parts
Quartz sand or flint	104 parts

Grind the above frit with one-tenth of its weight of China clay.

(c) For a brown glaze, the following cheap leadless glaze is recommended:

Feldspar	112 parts
Manganese dioxide	35 parts
Marble or whiting	40 parts
China clay	13 parts
Quartz sand or flint	42 parts

These glazes should not be applied to the green ware, but rather, after the latter has been biscuited at about cone 014-012. The glost burn should be to cone 2—6.

Colored glazes may be prepared by adding copper or cobalt oxide and other colors to the glaze, or to a body composed of:

China clay	40 parts
Quartz sand or flint	40 parts
Feldspar	20 parts

These glazes are translated from "Sprechsaal" being attributed to Dr. Berdel, who is considered an authority in Germany.

The Ante-Fired Process of Brickmaking.

By J, Keele, C, E,

A NEW METHOD of brickmaking, known as the ante-fired process, recently patented, is attracting some attention in Ontario, and a plant to produce bricks by this process was erected in London. The method of preparation consists of digging the clay from the bank, and calcining it, with coal for fuel, in roast heaps out doors. The burned clay is ground in dry pans and screened. The screened product is then used exactly the same as sand would be for the manufacture of sand lime brick.

Several sample brick have been produced which appear to be as strong as good sand lime brick. If this be so, it is interesting to note that the various silicates which go to make up burned clay, will react with calcium in the presence of heat and moisture to form a bond. It is probable that there is not much difference in the nature of this bond, and that produced by calcium and silica in the case of sand lime brick.

The writer is not prepared to discuss the merits or otherwise of the process at present. A series of tests on brick made up according to the ante-fired method are now in progress. This process, if successful, would have a practical application to those days, which on account of drying defects cannot be used by the ordinary methods of brickmaking The chief advantage over the sand lime process seems to be a question of color.

The Use of Dolomitic Limestone for the Manufacture of Basic Brick.

In using the term "basic brick" we refer to that article whose principal constituent is alkaline in character and which, at the same time, is successfully resistant to high temperatures, as e. g., magnesite brick. Their principal use is as a lining for converters, or for similar purposes where a basic slag must be contended with. On the other hand, an acid brick is one in which the main constituent is acid in character, as silica brick, for instance, which are used in cases where the slag in question is acid in nature

According to "Tonindustrie Zeitung," a German periodical relating to clay products and brick in general, about 20,000 kilograms (45,000 pounds) of burned dolomitic limestone are used daily in the manufacture of the brick (basic) referred to above. To produce this amount of burned dolomite, it would be necessary to supply the lime kiln with approximately twice this amount of the raw material.

The dolomite, as it comes from the quarry, is generally of pieces too large in size to be fed directly into the kiln. Any of the ordinary stone crushers can be used to bring the dolomite down to smaller sized lumps, which not only make possible a better and quicker burn but also permits of the installation of a smaller crusher for subsequently reducing the burned article to the proper size.

After being burned the dolomite is passed through a series of crushers, which reduce it to about 16-18 mesh, feeding it into a bucket elevator which empties into a shaking screen, the tailings feeding back into the crusher, while the screened product falls into the bins.

From these bins the dolomite is fed into a mixing machine capable of being heated, where it is thoroughly incorporated with a suitable quantity of fluid tar. The machine is kept hot, merely to prevent the tar from becoming rigid, a steam coil being used to furnish the heat.

After a thorough mixing has been accomplished, the material is conveyed to a hydraulic press, capable of producing a total pressure of 1,125,000 pounds, or a unit load of about 1,800 pounds on each brick of ordinary size.

A New Type of Drain Tile.

Ordinary drain tile, as commonly made, with smooth ends at right angles to the long axis of the tile, satisfactorily fulfull their purpose, so long as they remain in alignment, with good contact existing between the ends of contiguous tile. As a rule, no trouble is experienced in this respect, when the tile are laid in good firm ground, but when wet soggy bottom land must be contended with, it can be readily seen that there is a tendency of the tile to get out of alignment, the line breaking at the joints of the tile, which results in poor drainage.

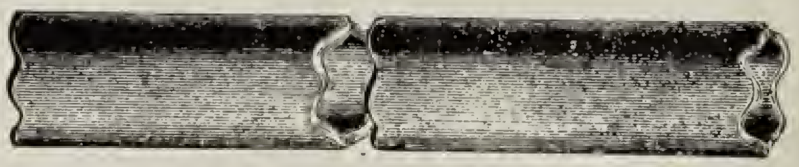


FIG. 1
INTERLOCKING DRAIN TILE.

With the point in view of remedying this trouble a German clay worker, Herr A. Jensen, conceived the idea of making the tile of an interlocking type, by giving an undulatory cut to the ends, as shown in Fig. 1.

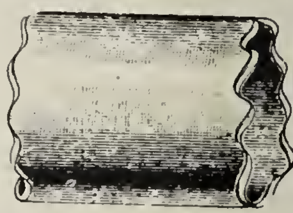


Fig. 2

In making this type of tile they are run from a stiff mud machine in the usual manner, being cut into lengths about 1½ in. longer than usual. After being put through the ordinary cutter, the tile are laid in the carriers of the machine shown in Fig. 3, which machine gives the tile the wavy cut. This machine is hand driven, being operated by the two cranks shown, in the figure, and can be used for sizes from 1½ to 5 in. in diameter. For larger size tile, the machine shown in Fig. 4 is used. Its capacity is one tile and in operating it, it is lowered into the tile from above, the tile resting on end. Both ends are cut at one operation, the upper cut being removed immediately, while the tile rests on the lower one, until dried. Both machines are protected through patents. They are in operation at six different plants in Germany.

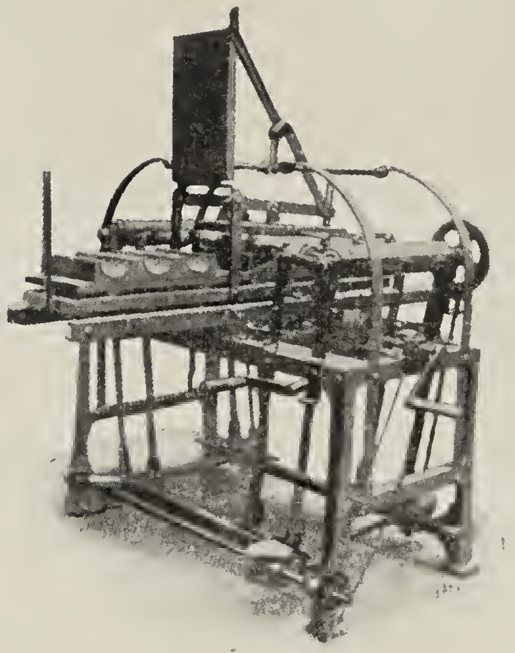


Fig. 4.

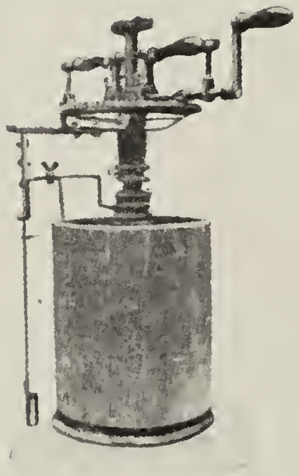


Fig. 3.

With the Clay Plants

A Department Wherein is Set Forth Factories Erected or Contemplated, Recent Incorporations, Improvements and Enlargements and Any New Ideas That May Be of Benefit to Others

In This Issue an Open-Yard Plant of Small Capacity, Making Drain Tile is Described, This One Being One of the Best of the Kind in the Country using Open-Yard and Shed Drying System

A DEPARTURE is made in this issue from the usual descriptive writeup of clay plants. It has been the custom to use one of the modern type—thoroughly equipped with the latest improved machinery and devices and conducted under the most approved methods—with an idea that it would give some clayworker a suggestion that would be of value to him in improving his own conditions.

Naturally these plants were of large capacity, as a rule, and therefore interested only those who figured in large quantities. There are, nevertheless, ten small plants—whose trade and territory do not warrant the installation of expensive machinery and the more pretentious drying and burning systems—to one of the larger plants.

For this reason "Brick and Clay Record' has chosen a small plant, of the open-yard style, where the territory is limited and the capacity, therefore, small, for the subject for description in this issue.

The Ullin Brick and Tile Manufacturing Company, of Ullin, Ill., is one of the best of the smaller plants. It started out to make both brick and tile when the company was first organized and the plant erected in 1906, but little brick is made today, the capacity of the plant being taxed with the demand for drain tile—Ullin being located in a rich farming section.

There is no more machinery than is necessary to manufacture a small output economically, and little more is needed, perhaps. There are no crushers, no dry-pans, no conveying systems, elevators or other modern conveniences of the more pretentious plants. There is no drying system, other than the sun and the wind, and there is no storage-bin or weathering system.

While the small output is responsible for most of this, the natural conditions surrounding the plant have a lot to do with it. For instance, there is the clay—a hill clay, yellow-red in color, and plenty of it very accessible. It usually runs about six feet deep, with three feet of sand underlying, and then more clay and more sand, and still more clay and more sand.

No weathering is necessary, of course, and the hill can be worked nine months in the year. It is gathered with a scraper and cable and hauled to the plant in the same scrapers, as the distance is not great.

There are four acres of this clay and the Ullin Company probably will have enough to last it, at the present rate, for many years to come.

The buildings are all of frame—in common with the usual small plant, the main machine room being 120x60. Two railroads—the C. & E. I. R. R. and the Illinois Central—afford good transportation and make competition fairly successful whenever the Ullin Company feels like going after outside business.

A Fate "Hummer" machine is installed in the machine room and the clay goes direct from the "sock" pit to the pug-mill and into this machine. Hot water is used in the pug-mill, but there is no need of any sort of mixture to get a good product.

Open-air sheds are used for the drying, which takes in ordinary weather about one week. The burning is done in two down-draft kilns, one of which has eight furnaces

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and the other five. Coal is the fuel used and the capacity of the kilns is about eight tons each. The kilns are partly open with semi-solid floors.

The plant is operated nine months in the year and usually runs to full capacity. The capacity was enlarged four years after erection—in 1910. Z. P. Willis is the president, L. P. Willis the secretary and treasurer and six men usually are employed.

NEWS IN BRIEF.

Enamel brick companies in the East are beginning to feel the competition of the most recent addition to the list of plants manufacturing that kind of brick. The new plant is an addition to the face-brick plant owned by the Hydraulic-Press Brick Company, at Winslow Junction, N. J., long one of the most successful brickmaking establishments catering to the markets on the Atlantic coast. One of the largest orders ever placed for coated brick was recently taken by this plant, through Fredenburg, Lounsbury & Houghtaling, New York representatives of the Hydraulic-Press Brick Company, and W. P. Varney, manager of the Chicago office of the same corporation. It called for 2,700,000 American size, porcelain-face coated brick and represented a figure very close to $100,000.

A fire at the plant of the Mechanicsville (N. Y.) Brick Company caused a loss of about $2,500 on December 14th.

According to present plans, over 400 houses are to be built in the Greater Pittsburgh district early in the Spring—all of brick. Plans are now being drawn.

More than 2,000,000 brick were manufactured during December at the Mount Union Silica brick plant, at Mt. Union, Pa., the greatest month's record in its history.

The New York Architectural Terra Cotta Company has established a branch office in Pittsburgh, having located in the First National Bank building, with Ellis Gates in charge.

The Federal Terra Cotta Company has been awarded the terra cotta material contract for the $60,000 theatre building under construction on the North side, for R. H. Boggs.

The West Virginia Brick Company, at Huntington, W. Va., has completed the erection of a new up-draft kiln having a capacity of 350,000. A new dryer has also been completed.

Warnock & Finnessy, of the Farmers' Bank building, Pittsburgh, have been awarded the terra cotta work on the new Dilworth school building, for the Board of Education, Pittsburgh.

In the sewer pipe trade, the outlook for the coming season is unusually bright, and some of the managers declare that they have reason for believing that 1914 will produce more business than did the old season.

Dividend checks for 1½ per cent were mailed stockholders of the Harbison-Walker Refractories Company, January 10. This staunch concern is one of the most regular dividend payers in the Greater Pittsburgh district.

The capital stock of the Climax Fire Brick Co., of Johnstown, Pa., has been increased from $200,000 to $300,000, according to a statement just filed with the Secretary of State at Harrisburg, Pa., by secretary Charles H. Luke.

The Acme Brick & Sand Co., of Milwaukee, has issued a neat booklet describing its products. The book is illustrated with exterior and interior views of the plant and a description of the sand lime process is given in the text.

In order that a number of repairs and improvements can be made to the plant, the officials of the Portsmouth Granite Brick Co., at Fire Brick, Ky., have closed operations. It is not likely that operations will resume until early in January.

It is likely that the new plant the Globe Brick Co., of New Cumberland, W. Va., will erect, will be built at Kenilworth. The clay at the Globe plant cannot last much longer, and as the company has a large acreage in the vicinity of Kenilworth, it is said the new plant will go up there.

The Oxford Pottery Company of Cambridge, Ohio, has been incorporated with a capital stock of $50,000 to manufacture and sell clay and other earthenware products. The incorporators are T. M. Bond, John Lloyd, Harry W. Dennis, U. G. Henderson, C. F. Cross, C. L. Johnston and J. A. Wilson.

William H. Kershaw, associate member Am. Soc. C. E. and Chief Engineer, Paving and Roads Division, The Texas Company, New York City, Jan. 9 delivered an illustrated lecture on "Commercial Mining, Transportation and Storage of Asphaltic Oils," before the Graduate Students in Highway Engineering at Columbia University.

At the annual meeting of the stockholders of the Acme Brick Company, held at Marietta, Ohio, the following officers were elected for the coming year: President, E. Clark; vice-president, A. J. Gracey; secretary, John Kaiser; treasurer and general manager, W. H. H. Jett. This plant is one of the most modern in the lower Ohio Valley, and is as near fireproof as a brick plant can be built.

The Manufacturers' Equipment Co., of Dayton, Ohio, has issued a new supply catalogue for the clay working trade. It is a very expensive piece of literature, and aside from the interesting description of machinery contained within its pages, it will prove an unusually valuable book because of its high-art printing. The catalogues are for general distribution and copies may be had for the asking.

A new brick plant, with a capacity of from 40,000 to 50,000 common brick, will soon be in course of erection at Wainwright, Okla. Allen & Wainwright are the owners.

The Paden City (W. Va.) Pottery Company will enlarge its plant by the addition of several kilns. The product is being changed, white-lined cooking ware being the principal product.

Announcement is made of the incorporation of the United States Square Pipe Corporation, of Dover, Delaware. The capitalization is $500,000 and the incorporators J. M. Satterheld, M. M. Hirons and W. P. Carron, all of Dover.

Work has been resumed at the plant of the Marion Brick Works, at Montezuma, Ind., which was closed down some time ago. It is stated that some new equipment will have to be purchased, and that the output will be about 80,000 brick a day.

Articles of incorporation have been filed by the Naturite Brick Company, of Fresno, Cal., the capitalization being $100,000. J. R. Baird, Jr., C. K. Salmon, A. K. Langridge and F. I. Simons, of Fresno, and C. F. Hitchcock, of Berkeley, Cal., are the incorporators.

The Grand Rapids (Mich.) Brick Company writes it is contemplating the building of permanent kilns to burn brick and tile. This being a new method, so far as the Grand Rapids Brick Company is concerned, it is not familiar with the different kilns now in use, and wants information regarding the various burning systems.

Walter G. Roland, of Reading, Pa., is making efforts to raise the capital necessary to resume operations at the plants of the Perkiomen Brick Company, which are located at Oaks, Montgomery Co., and at Wyomissing, Pa. The chief owners of the new company (which succeeded the Montello Brick Company) are Richmond L. Jones, John A. Rigg and Walter A. Rigg. The plants have been idle since 1909 and will need considerable overhauling before they can be put in commission. The combined capacity is 37,000,000 brick a year.

Charles A. Tramp, majority stockholder of the Nebraska City (Neb.) Brick Company, has sold his holdings to the Western Brick & Supply Company, of Hastings and Lincoln, Neb. This will add another plant to the number already owner by the latter named company, among which are two brickyards at Hastings, Neb., one at Holdrege and a large supply yard at Lincoln. It is the intention of the company to spend a considerable amount on new equipment at the Nebraska City plant and the making of brick, tile, and fireproofing will be pushed on a much greater scale than in the past. C. B. Hutton and A. H. Farrens are the owners of the Western Company.

POTTERY

The six-kiln addition to the Chester, W. Va., plant of the Taylor, Smith & Taylor Pottery Co., has been placed in operation, giving this concern a capacity of 16 kilns. In all, 36 new kilns have been added to the production of American pottery within the last month, the greatest increase ever recorded within such a brief period of time.

More than 100 employes of the new 15-kiln pottery plant of the Edwin M. Knowles China Co., at Newell, W. Va., have banded together and formed a sick club. A small fee is to be paid into the treasury every two weeks, and then when a member is ill, he receives a weekly sick benefit. In the majority of potteries in the western district there are sick and accident benefit organizations, and they have extended aid in many instances.

The annual exhibition of American-made pottery has been opened in the Ft. Pitt Hotel at Pittsburgh. Everything new in the domestic pottery line, so far as domestic ware is concerned, is being shown. Treatments of dinnerware are of a higher character than heretofore shown, and many new specialties have been created. The exposition will continue for the month, and hundreds of buyers are scheduled to visit the market during that time.

At a meeting of citizens at Cambridge, O., a few days ago, the promotion of the new Oxford Pottery Co., of that place, was given consideration. The company has just been formed with a capital stock of $50,000, the incorporators being Thomas H. Snider, Charles E. Maier, Harry W. Dennis, T. M. Bond, C. F. Cross, U. G. Henderson, C. L. Johnston, John Floyd, J. A. Wilson and H. A. Forsythe. A site for the plant has been procured, and work on the buildings will be started early in the spring. Orders for machinery have not been placed.

Fearing that several propositions now in embryo would make further inroads into the defense fund of the National Brotherhood of Operative Potters, members of Kilnmen's Local No. 9 have come out with the statement their idea of having a distribution of the fund is for the general good and betterment of this labor organization. The same interests also declare that the National Headquarters building was erected from money taken from this defense fund; that "The Potters Herald," the official organ of the workers, was bought with funds obtained from this source and that a printing plant has also been established with a fund obtained from the same "fund." The members of the Kilnmen's local also declare that it is not the intent of the local to withdraw from the parent organization, and that this matter has never been given any consideration whatever. The official organ of the Brotherhood has been printed at an East Liverpool newspaper office ever since it was launched. Hereafter the paper is to be printed in a plant the Brotherhood has just installed in its building in East Liverpool. The vote on the proposition to divide the approximate $500,000 in the defense fund will not be "in" until the latter part of the month. The subject is said to be one that is being bitterly contested by both sides.

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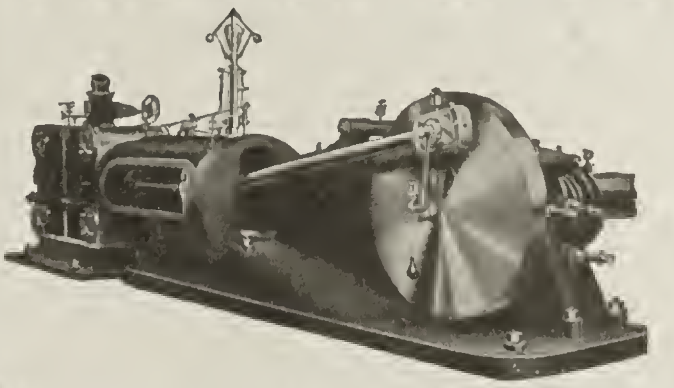

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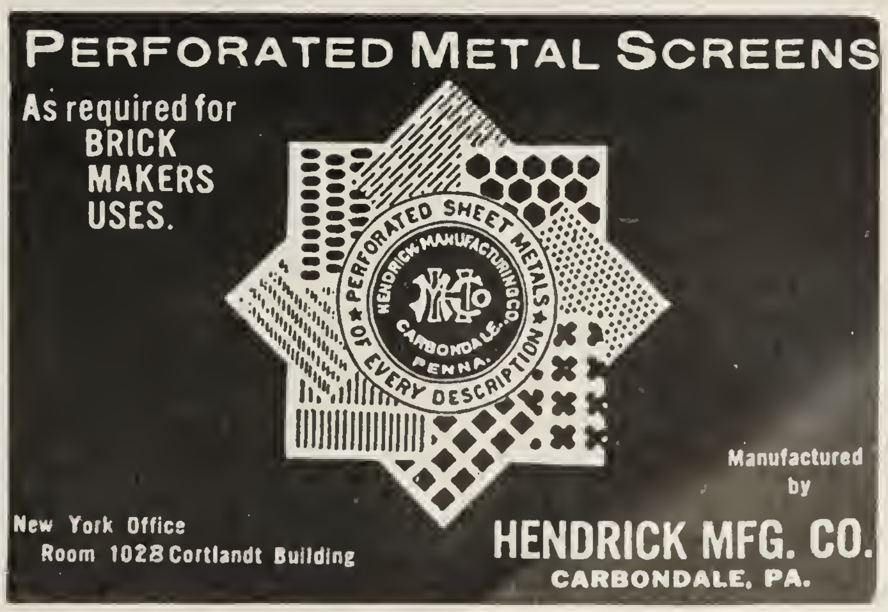
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The Letter Box

A Reply to Prof. Charles F. Binns.

Scum on brick, or, as some prefer to call it, efflorescence, is an ever-present subject for discussion. This journal seldom goes to press without having one or more articles on it and page after page could be printed without satisfying the clay-worker.

Recently Prof. Charles F. Binns, head of the ceramic school at Alfred College, New York, contributed a very valuable article on efflorescence and it was thought this would close the subject, for a time at least, because of its convincing nature. Apparently it did not, for we have had numerous applications from readers for solutions in the "Question and Answer Department," and not a few contributions. Today we have a letter from John C. Boss, of Elkhart, Ind. Mr. Boss, as we all know, is the inventor and patentee of a drying and burning system which bear his name. Because of his long and practical experience in this work he has been accepted as an authority.

Mr. Boss takes exceptions to Professor Binns and, in fact, declares rather emphatically that the addition of chemicals is not a cure for scum, but rather increases the chances for the trouble to appear. This direct contradiction is interesting to say the least and without further comment we submit his communication to our readers:

> "I note in your issue of Nov. 18 an article by Prof. Charles F. Binns on 'Efflorescence and How to Stop It.' We recognize the seriousness of this troublesome problem and how many have battled with it, attempting to find a proper solution for it.
>
> "The writer must recognize the possibilities of analyzing clay and shale and determining the chemical elements in it which, from an analytical standpoint, are responsible for these difficulties and, furthermore, that since they have likely not had the direct practical experience in noting the drying and burning effect on clays the analysts are, perhaps, justified in their attempt to overcome the difficulty by adding a mineral that will supposedly destroy, or eliminate, the troublesome ingredient and they find that certain minerals will apparently appear to destroy the supposed minerals that cause the efflorescence.
>
> "However, the writer would like permission to offer a more simple, sure remedy for this trouble or evil. Whitewash, or efflorescence, even though it all comes from the same positive source and chargeable to artificial dryers and brick kilns which have a poor, sluggish draft, is traceable to or brought out in three different ways.
>
> "The first is, in an artificial dryer where the material to be dried is overheated and the moisture which is being liberated from the material is brought to a boiling point before it is able to escape from the dryer.
>
> "Second, we will assume that the artificial dryer is faultless and producing thoroughly well-dried brick in which the moisture had not been brought to a boiling point in the dryer before it escaped and that the material is entirely clean, so far as the efflorescence or whitewash is concerned.
>
> "When such clean, well-dried brick are put into an up-draft or a down-draft kiln, in liberating the moisture from the brick and dispelling it from the kiln, if said moisture comes to a boiling point before it is finally expelled from the kiln the whitewash is again established and brought into evidence.
>
> "The conditions of these two ways of establishing efflorescence, or whitewash, should be fully and thoroughly understood by brick-makers.
>
> "I will admit that there is a chemical substance in all clays that, under certain conditions, will produce the discoloration, but if in the artificial dryer, and then again in the brick kiln, a little extra time be given and not allow the moisture in the brick to come to a boiling point, you will never be troubled with whitewash or efflorescence in these brick.
>
> "The efflorescence is a deposit that only becomes troublesome when the temperature is increased to where a boiling condition is brought about before the moisture is expelled from the brick during the period of time when the liberated moisture is being expelled from the brick and out of the dryer, or out of the brick kiln, and then only can it become a troublesome feature providing moisture be in such quantities in the artificial dryer, or brick kiln, that the air being so heavily laden that it cannot carry it any longer, it finally is compelled to condense, in which condensed form it settles on the surface of the brick.
>
> "If the moisture in them has not come to a boiling point the minerals causing this trouble are dissolved and carried off from the brick in the form of vapor and do not cause any trouble unless the process be hastened too rapidly, which causes condensation during the period when the moisture is being expelled and carried away.
>
> "In other words, good circulation in an artificial dryer or in a brick kiln, which will never allow the air to become overloaded with more moisture than it can readily and easily carry, and then keep it moving and not allow it to come to the boiling point, is the only sure way of avoiding efflorescence in an artificial dryer or in a brick kiln.
>
> "The third process of discoloration, or efflorescence, comes from brick that even though they were properly dried in the dryer and not damaged or injured in the brick kiln, and when they come from the kiln are perfectly clear and clean, if the brick are not properly vitrified, hard and well-burned, they will immediately begin to show discoloration when the moisture strikes the brick after they are laid in the wall.

"In other words, if a brick that is not properly vitrified and burned, but laid into a brick wall, the whitewash will appear and dissapear in the wet and dry periods and continue to do so as long as the building stands.

"I have witnessed instance after instance where brickmakers have followed the advice of making the different mineral applications to overcome the efflorescence and whitewash and even though certain minerals have been applied to the brick while in process of manufacture, buildings in which the brick were used were troubled just as much as brick in the manufacture of which no minerals were used—that is, if the brick were not thoroughly and properly vitrified.

"In fact, a brick which has been chemically treated to avoid efflorescence is more subject to the periodical appearing and disappearing of the troublesome efflorescence while in the wall than brick that had not been thus chemically treated. The trouble of the coming and going of the efflorescence is multiplied and increased by the use of minerals.

"It should not be necessary to whitewash brick in an artificial dryer and after they are properly dried brickmakers should be taught that after the extraordinary expense had been incurred in making the brick, that just a little extra thought on proper burning is very much to be desired. Just a little extra care in seting the brick to provide good circulation will make it possible to watersmoke and burn the brick in equally short time, and with less fuel cost, than though careless brick-setting were allowed which is sure to produce the efflorescence and tend to ruin the brick and, hence, destroy the brickmakers' profits.

"If there were no avenues of escape such as described above, and simple ones at that, the writer would feel very sorry for the average brickmaker but, under the circumstances, the need of the hour is to educate the brickmaker to the real source and reason for the trouble and that just a little ordinary care will eliminate the difficulty and forever eliminate the troublesome efflorescence."

Mr. Boss has made some statements which undoubtedly will open up a vigorous discussion. We await the results with interest and assure our readers that these columns are open to them in the interest of the good work.

Stops Concrete Decision to Hear Brick.

A few weeks ago B. Broadwell & Son, manufacturers of brick, tile and hollow building block, Kingsville, Ont., wrote us saying that his municipality was figuring on considerable street improvement and asked us to forward some literature as the cement interests were working hard to interest the council. We sent what literature we had at hand, including reprints of the "Truth About the Wayne County Roads," and also referred the case to Secretary Blair of the National Paving Brick Manufacturers' Association. We were pleased since to receive the following letter from Messrs. Broadwell:

> "We wish to thank you for sending the copies of the Wayne County article. We have distributed printed matter quite freely and believe it has made some impression as the council has laid over the paved road vote until some investigation can be made. We thank you for your prompt attention and hope we can put brick to the front."

As we remarked once before, the spirit shown by Messrs. Broadwell is one worthy of imitation by all clay workers. Boost all burned clay products even if you do not manufacture them.

Warns of Concrete Publicity Campaign.

Emil Schinke, 1301 Leeper avenue, South Bend, Ind., in ordering a copy of the Oct. 7 issue of this journal, which contained the "Truth About the Wayne County Roads," says:

> "The Universal Portland Cement Co. has had representatives in South Bend, Ind., the past few weeks, showing in moving pictures the Wayne County, Michigan, cement roads, and has succeeded, as far as it has gone, in having petitions filed with the auditor to build about 22 miles through St. Joseph County (Lincoln Highway) and the petitioners recommend concrete roads. The same will be presented to the commissioners Jan. 12. I merely tell you the facts so if you have any competitive friends, you can put them next.
>
> "If you have any other issue speaking against the use of concrete roads, please let me know."

This letter came to us too late to be of any service as the hearing was slated for Jan. 12. However, it is possible that some of our paving brick manufacturers will be interested in knowing these facts.

Predicts Busy Year Ahead.

In remitting his subscription Fred W. Alhorn, of Alhorn & Waller, Morganfield, Ky., manufacturers of brick and tile, says:

> "This has been a very busy year with us. We have been able to get rid of our brick almost as fast as we could get them out. The tile business was slow through the Summer and Fall, but is getting heavier now and we believe by Spring we will be able to sell most of the stock we have on hand. We wish you a prosperous year."

Our Kentucky subscriber certainly is to be congratulated. Who said there was no prosperity?

An Answer to Mr. Schmatolla.

William A. Butler, 4221 West St., Oakland, Cal., takes some exceptions to the statements made by E. Schmatolla in this department in the Dec. 16 issue. Mr. Butler says:

> "I wish to state that while I am fully aware that a good grade of bituminous-coal-made producer gas may be burned cold and with cold air completely, it certainly is at the expense of fuel and more equipment than, say for

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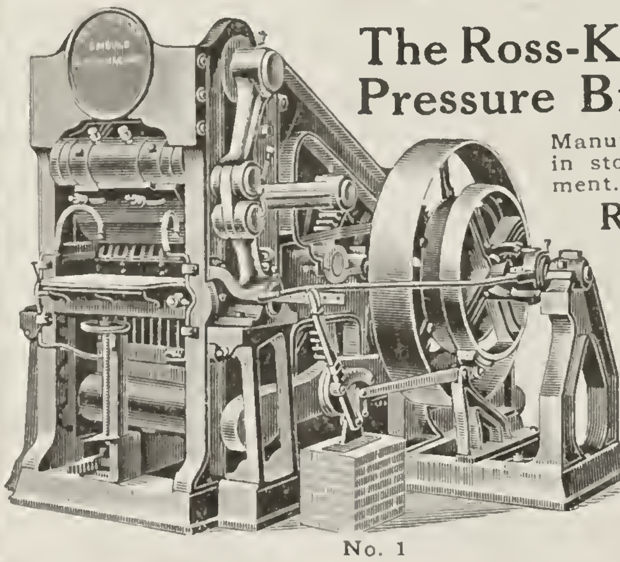

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Westinghouse Motors

Have increased the production of many brick and clay plants 10 per cent or more. Our engineers know just the motor characteristics required to drive each type of machine in brick plants at its best producing speed. Our knowledge gained in equipping numerous plants is yours, and costs you nothing. Write to our nearest office for full information.

Westinghouse Electric & Manufacturing Co.

East Pittsburgh, Pa.

Sales Offices in 45 American Cities

example, the Youngren producer gas-fired kiln. The primary function of heated air is to **increase the intensity of combustion.** No better example of this may be had than the Diesel engine, which burns crude or fuel oil instead of the more refined oil or gasoline used in all other gas engines. The combustion or explosion which causes the motive power is accomplished by compressing ordinary air to such a density that its temperature is raised above a red heat, so that when the crude oil is sprayed into this highly heated air, there is an immediate, perfect, complete explosive combustion.

"In the Hoffman continuous direct-fired kiln, the air of combustion passes through the incandescent just-burned brick and this kiln has always given a better account of the amount of carbon used to each 1,000 brick than any kiln since Noah first made brick and burned up the ark for kiln-fuel."

Becomes General Manager.

F. A. Cole, with the Marion office of the Marion Brick Works of Montezuma, Ind., has been appointed general manager of the company and has moved his headquarters to Montezuma. Recently Mr. Cole, one of our long-time subscribers, cancelled his subscription at Marion and the circulation manager naturally was interested in knowing why. The following letter tells:

"I have yours of Dec. 26 and wish to correct the false impression left by my former letter asking you to discontinue sending your valuable magazine to me at Marion. I have just recently been appointed general manager of this company and have moved my headquarters from Marion to the plant at Montezuma, and as we are getting a copy of 'Brick and Clay Record' there, don't need the one that I am now getting at Marion. I have been reading this magazine for a good many years and would be very sorry indeed to be without it. Best wishes for a prosperous and Happy New Year."

Hopes for a Central Organization.

A letter from John S. Rice, secretary of the Vitrified Clay Industry, a recently organized association of sewer pipe manufacturers east of Indiana, with headquarters in Suite 1009 Wyandotte Bldg., Columbus, Ohio, believes there is the need of a central promotion and publicity bureau for all clay products. He says:

"I wish to ascertain if there has been any materialization of the formation of a central organization along the lines suggested in one of the issues of your magazine—I believe in May, 1913. Since that time the sewer pipe manufacturers east of Indiana, have organized for publicity purposes, but since the formation of our bureau, I have not heard whether there has been anything done along this line.

"I have given the subject considerable thought and I would heartily indorse a movement of this nature. I can see that much good can be derived from it, especially in such cases as you refer to in your article—at Dayton, Ohio, following the flood—and many other similar references by you.

"Take, for instance, the Panama Exposition in 1915. Though an organized effort of the clay workers by an association of this kind, the cost to make one grand, huge display could be minimized."

Mr. Rice refers to an editorial that appeared in this magazine, on Page 622, April 15, 1913, following the floods that swept Ohio and Indiana. In this editorial the lesson of the flood was brought close to home and the opportunity of the clay worker to take the initiative and see that burned clay was the material used in all rebuilding and new construction work, which was sure to follow, was pointed out.

We bemoaned the lack of some central body of clay workers—an organization formed to boost all sorts of clay products—and outlined briefly what we felt was the proper sort of organization to take up such work in the future.

We regret to say that no definite steps have been taken in the matter for the very reason there has appeared no Moses to lead the clay workers. Some day, however, and not far away at that, a great central publicity and promotion bureau will be formed, because clay workers recognize its necessity and will demand it.

Sees Chance for Educational Work.

L. T. Mapel, of the Terre Cotta Lumber Co., Pittsburg, Calif., thinks there is some need of educational work along certain lines among his neighbors. We have this letter from him:

"I am enclosing the circular reports of the California Glazed Cement Pipe Company, which may be of some interest to you. Your pamphlet, 'Life of Portland Cement,' should be mailed to the inspectors and engineers mentioned in the enclosed. The seasons' compliments and best wishes for a prosperous New Year in your clay-working field."

The circulars mentioned are entitled, "Engineer's Bulletins No. 1, 2 and 3, Tests," and are issued by the cement pipe makers referred to by Mr. Mapel. Naturally, the cement manufacturer makes some comparative statements which cause burned clay products to suffer. Mr. Mapel's suggestion that copies of "The Life of Portland Cement" should be sent the same engineers to whom the cement bulletins were mailed is good and we will be glad to do so if the drain tile and sewer pipe manufacturers on the Coast are sufficiently interested to get the required list and pay for the actual cost of mailing the same.

As to China Clay.

Henry N. Hanna, 515 Equitable building, Baltimore, Md., takes us to task, for what he finds, some inaccuracies in a recent article on china clays. He says:

"In your issue of Nov. 18 I note an article on the 'Revival of the China Clay Industry in this Country.'

"There are several inaccuracies in this article which should be corrected. In the first place, the Payne-Aldrich Bill imposed a duty on English China Clay of $2.50 per ton and not of $1.25 per ton, as stated. The duty provided by the Underwood Bill is $1.25 per ton.

"The fact is that at the present time it is very difficult for the potting or paper industries to get domestic clays that are equal in quality and color to the English clays."

We are glad to be corrected, as misstatements sometimes do harm. This journal endeavors to be accurate, in everything printed and goes to considerable expense of time and labor to "print things right." Sometimes, however, inaccuracies will creep in.

From Far Away Brazil.

We have a letter from F. F. da Rosa, S. Paulo (Brazil) 19. Avenida. Hygienapolis, one of our recent subscribers. He calls attention to the change of his address to 57, rua Fortunato, S. Paulo, Brazil, so that his magazine may be sent him to his new address, and then says:

> "I am very glad I took the subscription of your magazine, for it has been of great value to me in my work at my plant, which has a capacity of about 20,000 tubular brick per day and about 50,000 common brick. We make also tiles and sewer pipes and some pottery.
>
> "May be I will take a trip to your country the next year and then I will try to visit some of your big brick yards and other kind of clay product manufacturers. I am sending for catalogs from the machinery factories advertised on your magazine, may be I will buy some more machinery for another plant I have in mind to establish."

Machines and Equipment

The illustrations shown below are familiar to most users of belting for conveying and elevating. Fig. 1 shows how the ordinary rubber or canvas belt, made in the old way, opens up between the plies as soon as the friction lets loose, as the result of deterioration, or where the stitches in an ordinary canvas belt have been worn or cut. Fig. 2 shows the result of edge abrasion on some belts, particularly those of the "solid woven" type. Fig. 3 represents a piece of "Rexall Double Stitched" Belting, showing the "protected" inner stitches which no amount of surface abrasion can cut or wear off. Many instances are on record where the outer plies in a "Rexall" Belt have been worn entirely away, leaving the center or body of the belt intact, which makes it possible to obtain the maximum service from the belt. This is especially advantageous in conveyor belting where abrasive action is a prominent element of destruction. Attention is also called to the scientific edge construction of "Rexall" Belting. These edges are made "double rounded," that is, each side of the belt has rounded edges, and while it is well known that an ordinary piled or raw edge in a belt will readily suffer from abrasion, these rounded edges, as shown in Fig. 3, will not readily catch on a projection.

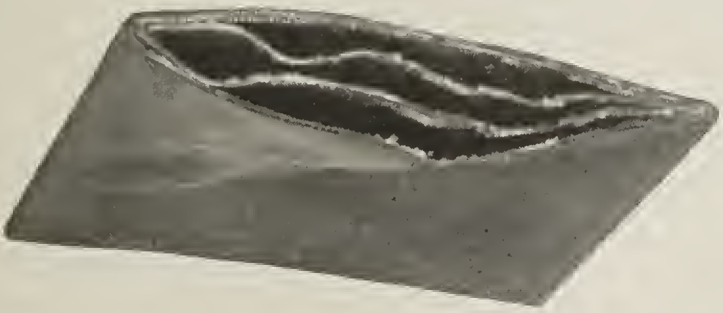


Fig. 1.

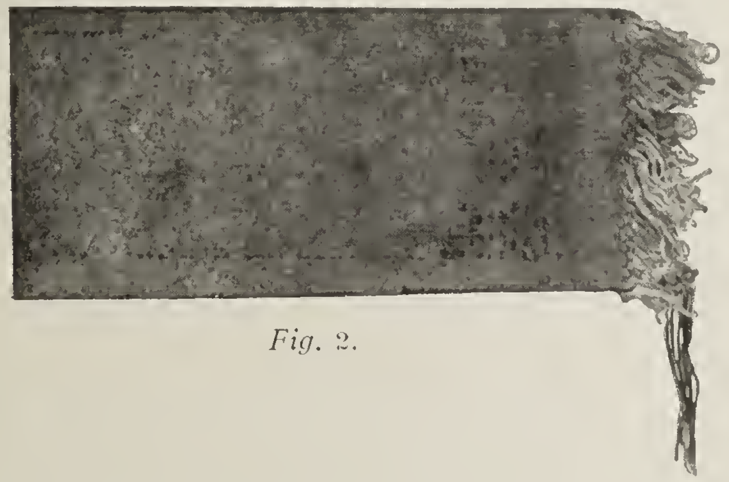


Fig. 2.

The Imperial Belting Company is now in its new Chicago factory, located at Lincoln Ave. and Kinzie St. It has developed an extensive business with the clay products industry, and "Rexall" Belting will be found operating successfully in clay plants all over the country for conveying, elevating, and drive service. A significant item of interest in connection with the large volume of business which this enterprising concern

To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

Literature on Application

Other High Grade Chemicals For Clay Industries

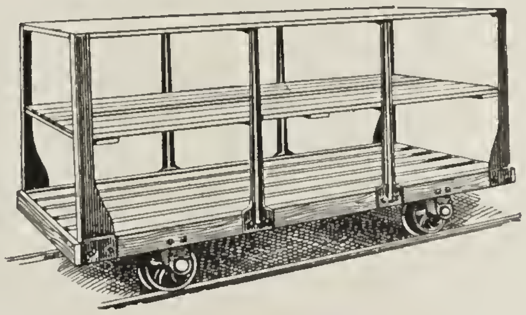
The Roessler & Hasslacher Chemical Company

100 William Street, New York

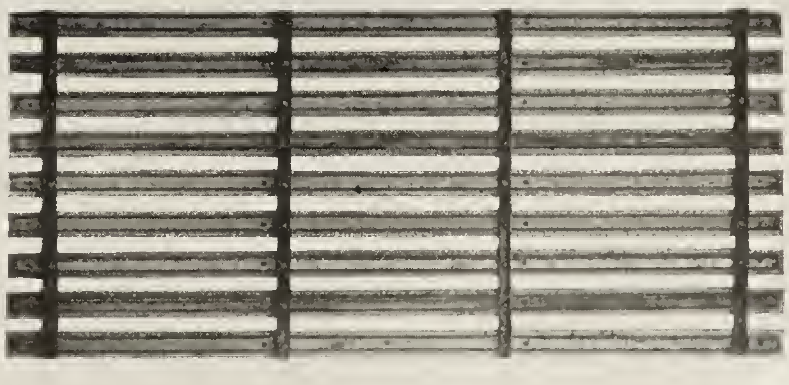
Manufacturers of the famous

Vulcan Dryer Cars

Over 4000 in use in Mason City



Write for particulars about them and the Vulcan Improved Combination Wood and Steel Decks.



Also grey iron castings for all kinds of brick and tile machinery.

VULCAN IRON WORKS COMPANY
MASON CITY, IOWA

How much of your loss is due to off-shade burns?

Do you know what makes them off-shade?

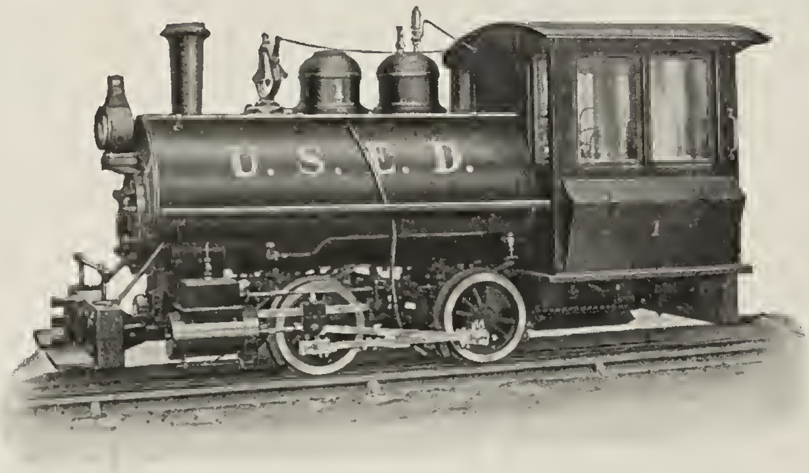
Are you sure it is not the clay?

It may be that your clay is not properly mixed—that lack of uniformity starts at the dry-pan and carries through to the stock shed. Get a correct start with

The Rust Clay Feeder

MARION MACHINE FOUNDRY & SUPPLY CO.
Box 395 MARION, IND

CLAY HAULAGE
Reduce costs of transportation by using a
Davenport Industrial Locomotive



Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Cheaper Than Horse Transportation

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars

Davenport Locomotive Works
DAVENPORT, IOWA

Branch Offices
St. Louis: 654 Pierce Bldg.
New Orleans: 208 Godchaux Bldg.
Chicago: 12 and 14 So. Canal St.
Pittsburgh: 405 Oliver Bldg.
Seattle: 617 Western Ave.
Montreal: 286 St. James St.
St. Paul: 1308 Pioneer-Press Bldg.
Winnipeg: 45 Canadian Life Block
New York City: 362—50 Church St.
Vancouver: 175 Cordova St.

is doing in their line is the fact that they are carrying in stock at their Chicago factory all sizes of "Rexall Double Stitched" Belting, from 1 inch to 36 inch, inclusive, in 1,000-foot rolls. They will welcome an opportunity to supply all interested parties with complete information regarding their product.

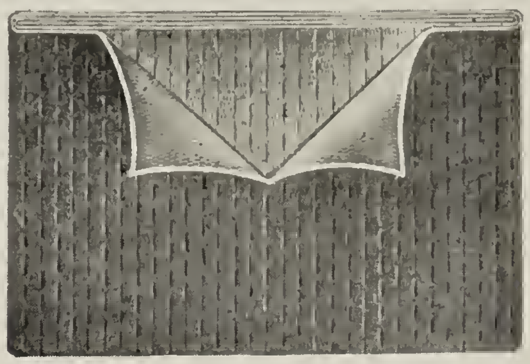


Fig. 3.

Making Money for Other People.

More than four hundred Berg presses have been manufactured and are in successful operation throughout United States, Canada and Europe, one press operating successfully as far away as New Zealand. Each of these presses manufactures from 18,000 to 22,000 brick in a day of ten hours. Four hundred presses making an average of 20,000 brick per day equals 8,000,000 per day. There are 300 working days in the year. The total output for these 400 presses would, therefore, be 2,400,000,000 brick per annum. A reasonable profit on dry press brick is 5 per thousand, and the net annual profit for the 400 machines, on the above basis, is $12,000,000. The Berg Company is continually on the lookout for further developments and improvements in brickmaking machinery, and is experimenting with this end in view. A portion of its works is fitted with a full line of brickmaking machinery for the purpose of testing clays of all kinds, and trying out new processes, for the manufacture of building material, particularly clay and sand-lime. This concern lately turned out some remarkable sample brick, which the public may hear of later, but not until the Berg Company is thoroughly satisfied, and is willing to put its reputation and guarantee behind them. Its aim at all times is to produce the highest and best in quality, so as to maintain the enviable reputation earned in the manufacture of brick machinery. The public has the choice of buying the machinery C. O. B. cars Toronto and fully guaranteed by the Berg Company as to material and workmanship, or the Berg Company will undertake, after testing the material, to install a plant complete and demonstrate it capable of producing the required number of brick, equal to the samples produced in their testing-room from sample of material submitted beforehand. This concern always desires to test the material before supplying machinery, so that it will not have its name connected with any brick plant which is sure to be a failure, by reason of not having suitable material.

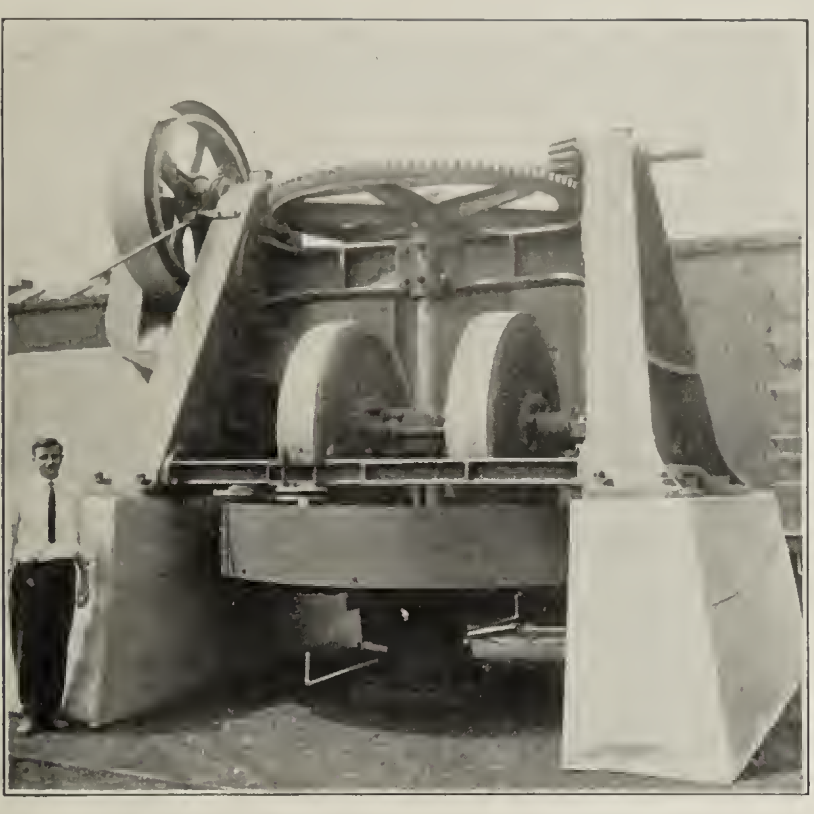
Huge Rubber Conveying Belt.

The Ashland Fire Brick Co., of Ashland, Ky., has had a special rubber conveying belt manufactured for its plant. It is 405 feet long, of 16-inch 6-ply "Maxicon" belt, made by the B. F. Goodrich Co., of Akron, Ohio, and $\frac{1}{16}$-inch rubber cover on the carrying side. The belt was sold to the Ashland company through the Goodrich distributors, The Atlas Rubber & Belting Co., of Cincinnati. This belt is a part of a very adequate conveying system especially designed for the Ashland company by Stephens-Adamson Mfg. Co., of Aurora, Ill., described on Page 991, Nov. 18 issue of this magazine.

The Bonnot Co., of Canton, Ohio, is sending out a very valuable pocket memorandum book and diary. It contains more real information than many of the so-called encyclopaedias and yet is vest-pocket size. In addition to having a yearly calendar, a diary, colored maps of all states and nations and a cash account, there is a condensed encyclopaedia. We understand the Bonnat Co. will send copies free to all who write for them.

Ricketson Mineral Paint Works, of Milwaukee, Wis., has issued a small folder, "Ricketson Reasoning," which explains some of the points of merit claimed for "Red Brick" brand mortar colors. The circular also tells how to mix the colors and tints in various kinds of work. The Ricketson colors are non-fading and are not affected by heat, acid or cold. In addition to using them in mortar work, brick manufacturers find them desirable in mixing with molding sand in soft mud process.

The Centerville Iowa Brick Co. has made arrangements for enlarging its productive capacity during the season of 1914. A Garch 5-mould brick press has been ordered by Secretary Edward Shutts from the Illinois Supply Co. at St. Louis, and a 9-foot dry-pan has been ordered from the Eagle Iron Works at Des Moines, Iowa. The installation of these machines will increase the capacity of the plant 25 per cent. Preparations are now being made for the installation of the new machinery, by the laying of foundations, etc., and the machines will be delivered as soon as the preparations are completed. The machinery now in use will be taken out and superseded by the new and there will be a complete new plant.



The above illustration is from a photograph of one of the largest dry pans made—a ten-foot pan, one of four recently made by the Bonnot Company of Canton, Ohio, on special orders. Two of these went to the Metropolitan Paving Brick Co., of Canton, Ohio, and the other two were made on special orders for other paving plants. The machines weigh 55,000 lbs. each.

Freight Tariffs

The schedule of changes in freight rates, given below, was omitted from our Jan. 6 issue: it includes all rates that had been changed since the Dec. 16 issue—all being effective Jan 6. In the Feb. 3 issue, the list given will include those that have been made effective since Jan. 6, and up to and including Feb. 3.

From Eastern Points.

From Baltimore, Md., Magnesite, to Coatesville and Harrisburgh, Pa., \$1.75 per net ton; to Phoenixville, Pa., \$1.90 per net ton.

From Clearfield, Curwensville and Widemere, Pa., Paving Brick, to Elmira and Watkins, N. Y., 9½c per cwt.

From Chester, Pa., Brick, to La Tuque, Que., 26c per cwt.

From Kaulmont and St. Marys, Pa., Clay Products, to Knoxville and Marsh Creek, Pa., and Geneva, Lyons and Penn Yan, N. Y., \$1.75 per net ton.

From Middle West Points.

From Duluth, Minn., Brick and Hollow Building Tile, to Beaudette, Pitt, Graceton, Cedar Spur, Williams, Roosevelt, Swift and Longworth, Minn., 12c per cwt.

From Mason City and Clear Lake Junction, Iowa, Brick, all kinds (except bath and enameled), to Omaha and South Omaha, Neb., 6½c per cwt.

From Menominee, Wis., Brick, common or fire, and cement, to Duluth, Minn., when destined to stations south of Virginia, Minn., 6¼c per cwt.

From Murphysboro, Ill., Paving Brick to ship-side Gulf ports, for export to all countries other than Europe, Asia, Africa, Australia and New Zealand, 12¼c per cwt.

From St. Paul, Minn., Brick and Hollow Building Tile, to Beaudette, Pitt, Graceton, Cedar Spur, Williams, Roosevelt, Swift and Longworth, Minn., 17c per cwt.

From Versailles, Mo., Brick (except bath and enameled), Fire Clay and Fire Clay Tile, to Witmer, Mo., 11c; to Otterville, Mo., 12c; to Ascolon, Iowa, 11c; to Armour and Hurd Spur, Mo., 7½c per cwt.

From Western Points.

From Buffville, Independence and Tyro, Kas., Brick (except fire brick) to Konowa, Okla., 9c per cwt.

From Hebron and Dickinson, N. D., Pressed brick to Worland, 29c per cwt.; to Thermopolis, 30c per cwt.; to Sheridan and Cody, Wyoming, 25c per cwt.

The Semi Annual Index.

of Volume XLIII (July to Dec., 1913), will be found on pages 223 to 226 of this issue. This Index, in connection with the Binder advertised on page 308 will prove a great convenience to our readers. Extra copies of the Index will be furnished to subscribers on application.

GANDY'S AMERICAN COTTON BELTING GANDY'S THE GANDY BELT

Belt Users Protected

A recent decree handed down by the United States District Court of the State of Virginia enjoined an unscrupulous dealer from selling belts in imitation of the GANDY Belt for the genuine GANDY.

Similar decisions are being handed down every now and then in various states for the protection of belt users in general.

The GANDY Belt

is the original stitched-cotton-duck belting that has tempted so many imitators on account of its real merit.

The GANDY Belt costs only one-third as much as leather and much less than rubber belting, yet it wears longer than either, usually.

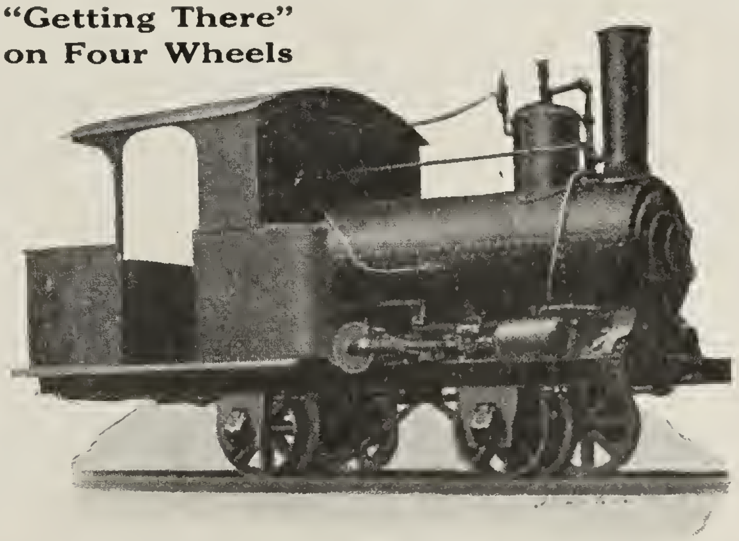
Get the red belt with the green edge, trade-marked and branded for your protection.

Sample on request.

The Gandy Belting Co.

732 W. Pratt St., Baltimore, Md.
New York Office 88-90 Reade St.

"Getting There" on Four Wheels



THE DEWEY 5-Ton Locomotive

Costs $1200 About as Much as a Good Team of Mules

It Never Balks on Heavy Loads or Grades

It pulls a full load under every condition and on any track. Does more and costs less than any type of Standard Locomotive of same size and power.

"Let the Dewey Do Your Work"

Write

for descriptive literature and "reasons why" you will save money by having the Dewey in your plant.

DEWEY BROS.
GOLDSBORO, N. C.

The "Martin" BRICK MACHINERY

Modern YARD SUPPLIES

Soft-Mud or Stiff-Mud Processes

Get Our Plans

Dry or Wet Grinding Pans

Barrows and Trucks

Disintegrators

Clay Cars--Dryer Cars

Hoisting Drums

The Henry Martin Brick Machine Mfg. Co.

GET MARTIN PRICE LIST

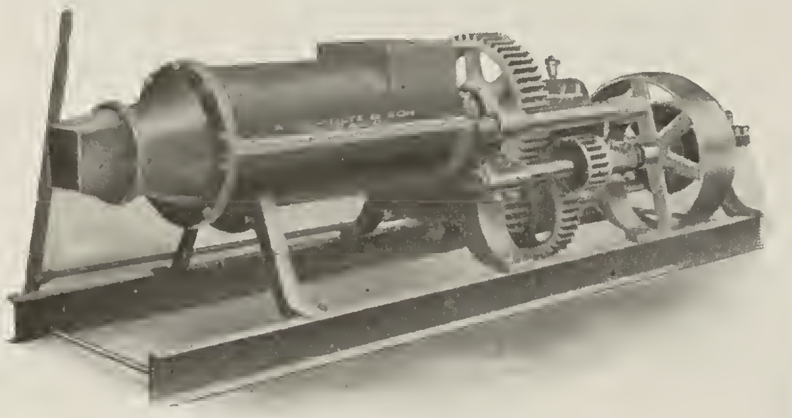
LANCASTER PENNA. U. S. A.

GET OUR BIG CATALOG

SCHULTZ EQUIPMENT

For Brick, Tile and Terra Cotta Plants

We make a specialty of designing and furnishing complete machinery equipment for all kinds of clay-working plants, including expert engineering service in supervising erection and installation.



Double Pug Mill equipment, especially designed for the perfect preparation of material in the manufacture of terra cotta.

SCHULTZ HEAVY DUTY FRICTION CLUTCH

suitable for all purposes. If you are having clutch trouble, write to us and we will show you the way out of your difficulties.

Complete brick plants furnished promptly, including auger machines, pug mills, clay cars and granulator shafts.

Cutting and cut steel gears always in stock for brick machines, also granulator knives.

Remember, we are brick works engineers and will be glad to advise you regarding any improvements or repairs which you contemplate.

A. L. SCHULTZ & SON, 1675 Elston Ave., Chicago

Telephone Monroe 1629

We also make a complete line of Power Transmission Appliances, Engines and Boilers.

Trade Reviews

New York.

With the opening of the new year common brick in the Eastern market holds a contradictory position. Other materials, such as steel, crushed stone, sand, wire-reinforcement, nails, hardware and glass, all important building factors, show decided strength, if not actual price advancement, while common brick in both the wholesale and retail departments fell back 25 to 50 cents a thousand. On January 12th the brick situation for the Metropolitan district was as follows: Hudson common open cargo brick was down to $5.50 to $6.00, with covered cargoes bringing $6.50 to $7.00. Raritan common brick dropped its wholesale price in all parts of Greater New York to $6.00 and $6.25, while Newark yard prices fell from $7.25 and $7.75 to $7.00 and $7.50, with $7.25 basis, for a fair grade of brick.

Such a decline at a time when navigation in the Hudson above Haverstraw is closed by ice, and other departments of the building material market are showing signs of strengthening, is unprecedented and indicates that brick dealers in the Metropolitan district are not inclined to speculate upon the turn of the building movement until actual improvement in contracted business develops.

The tendency at the first of the year was to await tangible evidence of improved building conditions. There was plenty of sentiment, but sentiment does not have as large value in the eyes of building material supply men as the interest their money is drawing in the bank. They want to be shown.

Evidence that there was something definite behind the improved sentiment was forthcoming in the opening week of the year in the fact that the American Steel & Wire Company withdrew entirely all quotations on certain departments of their product and is now quoting prices only on the merits of individual requirements. No hesitation was apparent when the reason for this attitude was asked, the statement being frankly made that this company did not intend to be caught short on a rising market. Simultaneously the crushed stone department shifted its prices up to history-making levels and a large consumer in New York took all the ¾-inch size the company would sell at the new high level of $1.30 as against the former high-water-mark of $1.10 in the last week of the year. Vermont roofing slate was another department of the material market that strengthened. Lumber is holding firm in all departments, but spruce.

These are a few instances showing the trend of the market at this time. Whether it is permanent or not remains to be seen, but when the year opened new projected building operations, each entailing a cost of $100,000 or over, figured up $6,000,000 more than the same calibre of building construction at a corresponding period last year. The actual figures are $57,500,000 in 1913 as against $63,000,000 for 1914. That a large proportion of this construction is either under way or will proceed to activity in the first quarter was shown this week when the United States Steel Corporation quoted a sharp advance on fabricated steel for second half delivery. This action means that the steel companies are still inclined to encourage new operations and will take small contracts on the present basis of $1.31⅕ tidewater, which should have the effect of quickly restoring the stability of common brick in this market.

The period of readjustment is at hand in other lines of business and the brick industry is no exception. More attention is being paid to economic problems at the selling end. An organized effect is being made to give clay products a fair chance in the struggle for a livelihood in the New York building market and to this end the last attempt to revise the building code that discriminated in the favor of another building material was nipped in the bud at the eleventh hour. There is no doubt that the brick industry is in a better position today to take care of a widespread building movement than it was when the 1909 building activity assumed large proportions. There is more co-operation among the brick manufacturers than there was at that time and it can be said without fear of serious contradition that the brick manufacturers are in a stronger position to make and hold their prices in a good demand than they ever have been before.

As for the present needs of the brick market, existing low price levels cannot long continue. Few of the dealers have any stacks in their yards for the simple reason that collections were not of such a calibre as to permit them to tie up large sums in anticipation of a rise in the market. Consequently, if a better movement in building construction develops within the next few weeks, there will be a prompt recovery in prices and the manufacturer will come into his own. He has the brick on hand up the river to meet any contingency that might arise in the Spring.

Pittsburgh, Pa.

It is currently reported in the offices of some of the face-brick manufacturers in the Pittsburgh district, that more orders were received during the past six weeks than in the same period, in several years. The real reason for this is not fathomed, although it is known that architects have a lot of work on their boards, and that the building contractors are anxiously awaiting the opening of the Spring season. Generally speaking, stocks in the yards and sheds are not extensive, in fact only limited supplies being available for immediate service. In several instances, factory managers have advised that they expected to increase stocks during December and January, but the specifications calling for immediate deliveries have been heavier than they had anticipated, hence the low stocks.

In the immediate Pittsburgh market, more than a reasonable supply of seconds are being sold, at prices that range between $14 to $16 per thousand. Some off-shade stocks are being sold but the range is placed by some manufacturers $10 @ $12 f. o. b.

cars shipping point. However, high grade stock is selling on a scale up as high as $20, f. o. b. Pittsburgh, with a fair to good movement on some of these best grades. Just at this time there is only a small amount of building being done in the Pittsburgh district, due to the condition of the weather, which has been hovering around the zero mark. Work that was started has been held up, and the contractors declare that they will not spade ground for any new work until the weather moderates.

In the Pittsburgh city proper, quite a lot of new building is contemplated for the coming season, and especially is this true in reference to the erection of new apartment buildings. Textured face-brick has been specified on many of these jobs, although smooth, evenly shaded brick holds its own. In the face brick plants down the Ohio valley, and especially with those in the Toronto territory, good business conditions are reported. In fact these plants are working to full capacity, and, although shipments are just a bit below the volume of manufacture, this permits some brick to be put in stock. The manufacturers declare that they want liberal stocks on hand when the Spring trade opens, but should shipments continue on a par with what they are now, it will take some factory managers hustling to keep their stocks at a point where they can take care of immediate shipments.

Announcement has been made that the Fallston Fire Clay Company is erecting two large beehive kilns at its factory at Fallston, Pa., and that early in the Spring two more large beehive kilns will be built. Several old kilns have been razed to make room for the new ones, but the latter are of a far greater capacity than those formerly used. Business conditions with this concern are pronounced to be of the best.

W. H. Sunshine, of Johnstown, Pa., with associated interests, have put new life into the business of the Windber Brick Co., at Windber, Pa., and the plant has been placed under the active management of Blair Cook. The company is reaching out after new business, and this has resulted in the receipt of a number of favorable orders.

Buffalo, N. Y.

Buffalo is growing fast, but as the conditions are below normal, this will not be a boom year. We look for a fair trade along all lines, however, as considerable building is to go ahead, which will create a fair call for common and face-brick, terra cotta, tile and fireproofing. Paving and fire-brick will about hold their own, sewer-pipe and drain-tile about as usual and while the pottery business is not as strong as years ago, there will be a fair output. There is a disposition to let matters take their course and in the end business is bound to improve and natural conditions of supply and demand, collections, labor, prices, etc., will reassert themselves and put all lines of trade on a sound business basis.

Toronto, Ont.

Toronto is now a metropolitan city of 450,000 inhabitants and is growing at a rapid pace. It is today one of the best industrial centers on the continent of North America. It is a revelation as to the amount of business done and the up-to-date methods used, which has been brought about by a revolution, from a business standpoint. Ten or twenty years ago business had not been modernized, but of late years the introduction of later machinery by American manufacturers, has resulted in a great change. Now one will see some of the most modern plants working and creating history for this Queen City of Canada.

The tariff is the means that has caused the big plants to start and thrive and it was necessary for Americans to open branch plants or come here and make it their home. Considering all lines of trade, there were opened in 1912 and 1913, each year 88 new American factories along the line of the C. P. R. in Canada, which means an addition to the population of 50,000 people and the employment of 10,875 hands. These hands earned in wages about $9,000,000 a year and the capital of these new firms amounted to $18,000,000.

The year of 1912 was a big one in the brick line as Canada was having a phenomenal growth. As a result of it, many new firms started in making brick till the supply was ahead of the demand and the over-production lowered prices. Many cities were overbuilt last year and this created a financial depression, which still continues, but the new year of 1914 promises to be pretty fair. The big building that has gone on in this city, has been repeated in other places, such as Halifax, St. Johns, Montreal, Ottawa, Quebec, Hamilton, Winnipeg and Vancouver. It is reported that Winnipeg has already granted permits for $18,000,000 worth of building to go ahead this year. The big crops throughout the Dominion have been a big factor in making business, but money has been lost by some in wildcat speculation in real estate and mining property.

One of the important questions is technical schools. There is a good one in this city and the government at Ottawa plans to spend $3,000,000 a year on technical schools and to have one central Technical Institute, to develop experts in various lines and loan these experts to the cities who want them.

There are about 45 or 50 firms in the brick-making business and many new plants have been started during the past year. The large output of brick and the slower demand has resulted in the price of brick going down one dollar per thousand on common. The brick made here is mostly common building and the manufacture of paving and face brick is not so well developed. Paving brick has not taken hold strong in Ontario, as in the cities asphalt is favored. Canadian face-brick has gone up two dollars in the past three years, but they sometimes cut the established prices in the Summer and Winter, being strong in the Spring. Much American face-brick is imported (paying 22½ per cent duty), and sells for $10.00 more per 1,000 than the Canadian make.

There is more light colored face-brick used in Montreal than in Toronto, but the people here are being educated up to it and the demand is gradually increasing. The red stock brick made in Toronto is a good product and is much used.

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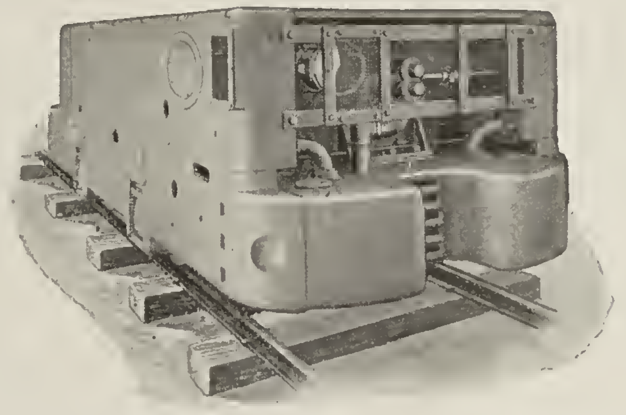

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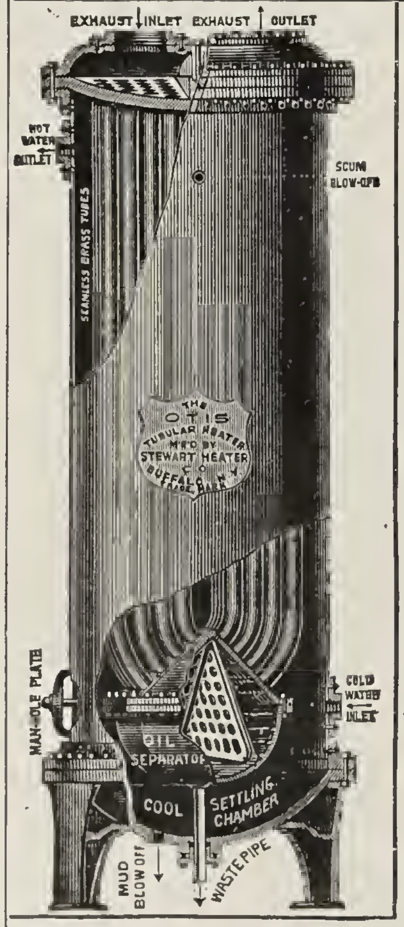

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The owners of the common brick plants do not feel like going to the extra expense of putting in kilns to make face-brick, as it requires so much more care in the burning. The brick will not all come out the same, which requires the sorting out of the different shades, and necessitates keeping a large stock on hand of each shade. When the brick maker has made good money in common brick he says he should not worry who makes the finer product. But there is a good opening for face-brick plants in this part of Canada.

There are concerns making fire-brick in Toronto, Quebec and St. Johns, and there has been a fair demand. This line is opening up larger each year and threatens to displace the imported fire-brick, a large quantity of which is now used.

Detroit, Mich.

The first interruption to building and construction work in the city of Detroit was felt on Jan. 12th when the thermometer hit the zero mark. According to the weather man it will remain extremely cold for at least a week or ten days, possibly longer. While the cold snap is not welcomed by contractors and those engaged in the brick business, it has proven a Godsend to the retail dealers in ready-to-wear garments, who will now be able to dispose of considerable heavy goods and get their stocks in good shape for Spring.

George Morris, superintendent of the American Sewer Pipe Co., of Grand Ledge, Mich., has returned home from the Ohio trip, following his illness, and has resumed his work at the factory. The many improvements at the factory are rapidly advancing; the new boilers have been installed and the walls of the new addition are practically completed.

George S. Tiffany, of Tecumseh, Mich., died on Jan. 5th, aged 80 years. He had been quite an inventor in his day, most important being a brick and tile machine which is still on the market. A widow and two sons survive him.

February 1st will see the Detroit Vitrified Brick plant at Corunna, Mich., in operation with a full force of 52 men. It is the expectation of the company to increase this force to 70 men by Summer. In future the brick manufactured by the company will stand the severest test, and only the best quality of blue clay is to be used in the making, sand rock having proved a failure. J. M. Debeaubien of Cleveland, an expert brick maker, is the new superintendent.

Commissioner Fenkell of the Department of Public Works in receiving bids for sewer pipe for 1914, states that the lowest bids for this material were up 2 per cent above the 1913 figure, and that he will at once readvertise for bids in the hope of securing a reduction.

The directors and officers of the proposed Potter factory in Mt Clemens met recently for the purpose of considering the appointment of the general manager, but it was decided at this meeting to defer the appointment until the organization work of the project has been worked out a little further. One of the biggest problems in connection with the matter at present is the collection of subscriptions on stock subscribed toward the factory. The association has a man on the work now, and from reports the results are all that can be asked, although it will be sometime before those in charge of the proposition have the financial end of the matter cleaned up and are ready to take action on the operating end. As soon as the collections are practically all in the appointment will be made.

The United States Pipe Company of Battle Creek has purshased a site for a factory in Bay City, Mich. The pipe company, which manufactures corrugated pipe for use in the construction of culverts and iron bridges, is making arrangements for the construction of its factory, which will be 60 by 100 feet in size. A plant has been established in Battle Creek for several years. The product of the plant has entered largely into the construction of drains and large ditches, where crossings of country roads are necessary, and is used to some extent by a number of railroads. A number of the stockholders of the concern live at Sandusky, Mich., and the reason for changing the location of the plant is that the larger percentage of the firm's business comes from the Northern part of Michigan and the Thumb district. After a careful investigation it has been found by the officials of the company that Bay City offers much better advantages, both for the shipment of raw material and for the transportation of the finished product than does the present location. The company expects to have its buildings completed and its machinery moved from Battle Creek sometime in February. The concern will employ in the neighborhood of 35 to 60 men the year round.

The Midland Brick & Tile Company of Midland, Mich., has merged its business into a stock company under the style of the Midland Tile Works, with an authorized capital stock of $10,000, of which $8,300 has been subscribed, $425 paid in in cash and $6,500 in property.

The common brick in the new Michigan Central Station, which was erected at a cost of two million dollars, being one of the finest institutions of its kind west of New York city, were manufactured and furnished by the T. H. Wolf Brick Co., of Detroit, whose yards are at M. C. R. R. and Central avenue. For nearly 40 years, F. H. Wolf has been making brick in this city. He went into business for himself in 1881 at Warren avenue and P. M. R. R. Since 1886 the F. H. Wolf Brick Company have been in their present location. The capacity of the yards is 160,000 or from 40,000,000 to 50,000,000 per year. The company has an excellent working organization and the best of wages are paid to their men. The plant includes all late improved machinery, oil burning kilns and much automatic devices. F. H. Wolf is president; J. E. Wolf, vice-president and Frank H. Wolf, secretary and treasurer of the company.

Frank Winninger, of Ishpeming, Mich., who does considerable tile work through the Upper Peninsula for a Milwaukee tile concern, says the time is not far off when most of the bath rooms in the better class of dwellings and clubhouses will be constructed of tile, which is coming into more general use every day.

Secretary William Kane of the Michigan conference of bricklayers announced on Jan. 12 the unions throughout the state had voted unanimously for an eight-hour day instead of nine as at present, and that the order would become effective May 1. It will affect about 1,000 bricklayers throughout the state.

J. J. Middleworth, of Duffield, Mich., and F. A. Wheeler of Ohio, have purchased the tile manufacturing business of W. H. H. Smith & Sons at St Louis, Mich. It is proposed to organize a company with a capital stock of $30,000. Stock will be offered for sale to farmers as well as other business men, thus making the enterprise in some degree co-operative. The present buildings will be put in first-class shape, and new kilns, new driers and new storage sheds will be built and all modern facilities provided to meet the demand for tile, which has always been larger than the supply.

Kansas City, Mo.

Business among Kansas City brick men has been quiet for the initial section of the new year, with prospects, however, so rosy, that a good deal of optimism is evident in the trade. Comparatively little new work is available, and brick manufacturers are, therefore, not running their plants at top speed, as a rule. However, such an immense quantity of building is in prospect that indications have seldom been better. The weather has been open, and if it continues so, the season probably will open up in the near future. One contractor announced recently that he has more than a million dollars' worth of work to bid on, much of it being of brick and terra-cotta construction. Others also have made statements of a similar nature and there is little doubt but that 1914 will be a big year for the clay industry in Kansas City, as well as other sections of the West.

The annual meeting of the Western Paving Brick Manufacturers' Association will be held at its quarters in the Dwight building on January 17 and will be followed by a banquet at the Baltimore Hotel. A number of notables of the brick and clay industry will be on hand, besides, of course, all of the members of the association. Iverson C. Wells, Editor of "Brick and Clay Record," is expected to attend. Prof. James I. Tucker, director of the School of Civil Engineering of the University of Oklahoma at Norman, Okla., will speak, as will several other engineers who have gained reputations in various sections of the country.

A general reorganization of the Cleveland Vitrified Brick Company, of Oklahoma, took place recently, David R. Hoshour succeeding Charles A. Hoshour as president of the company. The latter becomes chairman of the board of directors. The new president formerly was secretary. I. R. Carper, a new entrant, is vice president, while Henrik Moe has been made secretary. A. D. Ingalls has been elected treasurer, E. D. Wentworth, former treasurer, retiring. Other officers of the company also have disposed of their interest in the company, and are planning to re-enter the field. J. P. Turpin, who has been located in Kansas City for some time past, may be transferred to some other point, the Lumberman's Supply Company now handling the output of the Cleveland Vitrified Brick Company in Kansas City. Definite announcement of a change, however, has not yet been made.

The Bryant Supply Company, which provided 2,000,000 brick for the new Sears-Roebuck building in Kansas City, has completed its contract on that structure, at least temporarily. Five hundred thousand face brick and three times as many common brick were provided by the Bryant Supply Company. A fact of interest is found in the statement by Sears-Roebuck & Company that the new building is merely one of eight to be erected. Just when plans for the other seven are to be completed is not known.

The Vale Brick Company has completed the erection of all of its buildings at its new plant, and is now preparing to ship machinery to the ground. The new company has purchased much of the equipment of the Unit Brick & Gas Company, of Cherryvale, Kan. That company, with a good many others in the gas belt, has been forced out of business by the shortage of gas and other recent developments. Favorable weather has helped out the Vale Brick Company and actual manufacture of brick may begin even sooner than originally expected. The kilns are yet to be erected, however, and this work may be prolonged beyond the time limit by poor weather.

The W. S. Dickey Clay Manufacturing Company has secured its usual quota of big contracts recently, that for the Centropolis sewer having been noted. The company will provide the pipe for a big sewer in the western section of Concordia, Kan., the amount involved being something over $16,000. The McGuire & Stanton Construction Company has the contract. Walter S. Dickey recently was reelected to the directorate of the Kansas City Missouri River Navigation Company, which, with a Chicago company, is planning water navigation between Kansas City and Chicago. The Government has spent several million dollars on improving the Missouri river, and will make additional appropriations for the project, making the water transportation plan feasible. The directorate of the Kansas City Missouri River Navigation Company includes men whose fortunes run into seven figures and there is every reason to believe that the proposed plan will be a success.

San Francisco.

Very little change has taken place in the brick and clay products situation during the last month, at least in the district around San Francisco Bay. Comparatively few new building contracts have been placed, and while there is quite a lot of inquiry, so far there has been no assurance that many contracts, aside from those for municipal work, would be closed. In no line of the clay industry have the plants been working at full capacity of late, and now quite a number are closed entirely. While some improvement is expected within the next few weeks, the general opinion among local business men is that it will be four to six months before conditions of normal activity can be restored.

The brick men, in common with other manufacturers, have been doing some close figuring to see how they would come out under the new workmen's compesation law, which took effect the first of the year. This law places great arbitrary power in the hands of the State industrial accident commission, which will supervise all details of its enforcement. It pro-

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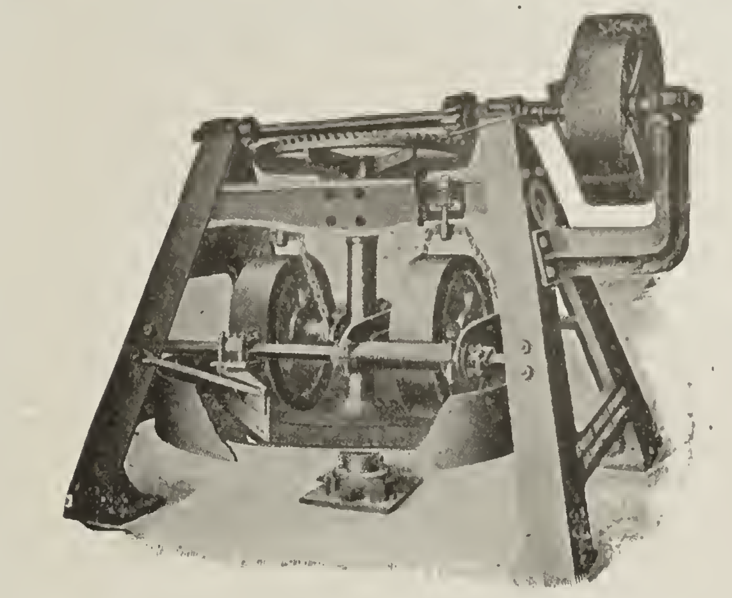

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We pay $1 for every suggestion sent us to be used in "The Superintendent's" Department, and the best suggestion receives a special prize of $5 each issue.

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We are striving to make "The Superintendent's" Department of great practical value to our readers and we want you to help us. This department is intended as a symposium of ideas. It should bristle with useful tips and suggestions. Read it yourself for you may receive some little idea thereby that will be of great assistance to you. In exchange for the good that you receive contribute something for your fellow workmen.

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vides compensation in definite specified amounts for all injuries suffered by employees in connection with their work, with practically no regard to the cause of the accident. It also requires that all manufacturing equipment be made safe for the workmen, which in itself will cause an important item of expense, while the cost of insurance against accident liability is regarded by many as almost prohibitive. As profits have been small and often lacking for some years in the San Francisco brick industry, it is quite evident that better prices will have to be realized if the majority of the manufacturers are to remain in the business, and that it will take some time to bring about an adjustment to the new conditions.

Still further trouble is in prospect, as efforts are being made, through the initiative, to pass a State law limiting the working hours in all industries to eight hours per day, and the possibility that such a law might pass is by no means remote.

The 38th Annual Banquet of the Masons' and Builders' Association of San Francisco was held at the Palace Hotel on the evening of Dec. 13, and as usual it was one of the big events of the year for the bricklaying contractors. Plates were set for about 200 guests. E. J. Brandon acted as toastmaster, and between speeches a number of pleasing entertaining events were offered. The affair ended with a dance.

Mr. Roberts, representing the fire brick line of the Stockton (Cal.) Fire & Enamel Brick Company, says the fire brick business has been holding up in very good shape, with favorable prospects for the future.

W. S. Hoyt, of the United Materials Company, representing the Los Angeles Pressed Brck Company and the Port Costa Brick Works, considers the clay products outlook for 1914 very good. For the last month or so, he says, work has been held up more than ever before, by lack of money; but figures are now being taken on a great number of brick buildings, and with the year-end interest and dividend payments cleaned up, money will no doubt be more readily available both from banks and private sources.

Officers of the Pacific Coast Shale Products Company of Porterville, Cal., say they expect to be ready to start construction of their new brick, tile and sewer pipe plant about Feb. 1. J. W. Phillips, formerly of Vallejo, Cal., has been engaged as general manager, and is now working on the plans.

There are indications of more rapid development of the clay resources of Ione, Cal., where the Ione Fire Brick Company has long been turning out an excellent product. The Ione Products Development Company is now getting into the field, and early this month shipped out its first carload of clay.

According to a report from Richmond, Cal., the Pacific Porcelain Ware Company of that place has laid off a number of its potters, and some who came from Eastern pottery centers are returning. It is said, however, that the company will reopen soon, and plans to put on a double force to get out several large contracts. The company makes porcelain sanitary goods.

In view of the general curtailment of building operations in the larger cities, the continued activity and healthy condition prevailing in the central valley towns of California is a pleasant surprise. In Sacramento, for example, the total of building permits to Dec. 1 was $3,207,121 against $2,795,543 for the complete year of 1912. An unusual number of permanent buildings have also been put up during the year in Fresno, Stockton and other interior towns.

The National Fireproofing Company of Los Angeles has the contract for general structural work for a 14-story building at 412 W. Sixth street, that city, amounting to $96,000. The job includes granite bases, brickwork, smoke-stack, terra-cotta work, floor and partition construction and plastering.

The San Francisco Labor Council is preparing to put up a $75,000 brick building, and is now ready to take figures.

The December building records in San Francisco and Oakland were fairly satisfactory, being well ahead of either the month before or December, 1912. The year as a whole, however, shows up rather poorly, and so far the brick dealers and manufacturers have no definite improvement to report. The new year is nevertheless starting off as well as could be expected under the circumstances, as several pending deals have been closed, and fair assurance is given that many contemplated jobs will go ahead. The brick men, in fact, feel considerable hope for the year as a whole, and expect to see the industry restored to a fairly prosperous basis during the coming Summer. Owing to the educational work done in the last year, brick is now steadily gaining ground in competition with other materials, and will be used in many of the most important structures to be built this year. Moreover, this is expected to be the best year in a long time for municipal improvements, owing to the greatly improved market for municipal bonds. While other types of sewer have been tried in many places, salt-glazed clay remains the universal favorite, and large mains are generally required to have a lining of vitrified brick.

Indianapolis, Ind.

With all plants in the state closed down but one, and little doing in the way of orders, the brick and burned clay industry in Indiana might be said to be catching its breath before starting the new year's business. A few of the manufacturers are as busy figuring on new work as they are on last year's profits and on planning improvements to their plants.

The new city administration in Indianapolis has promised to dispose of the Pogue's Run sewer contract, and the track elevation project at the earliest date possible. With the letting of these two contracts, involving as they do, a total of about $2,000,000 worth of business for building trades, the season will be given a big impetus. Tenants of the Efroymson & Wolf property at Illinois and Washington streets, where a $300,000 structure is contemplated, have been notified to vacate by March 1, or sooner. This contract was let to Henry Klausmann, former city engineer. It is to be a modern fireproof structure.

A new twelve-story structure is to be erected on the site of the Phoenix block, which is to be wrecked as soon as arrangements can be made with present lease-holders for vacation of the premises. One of the earliest structures to be

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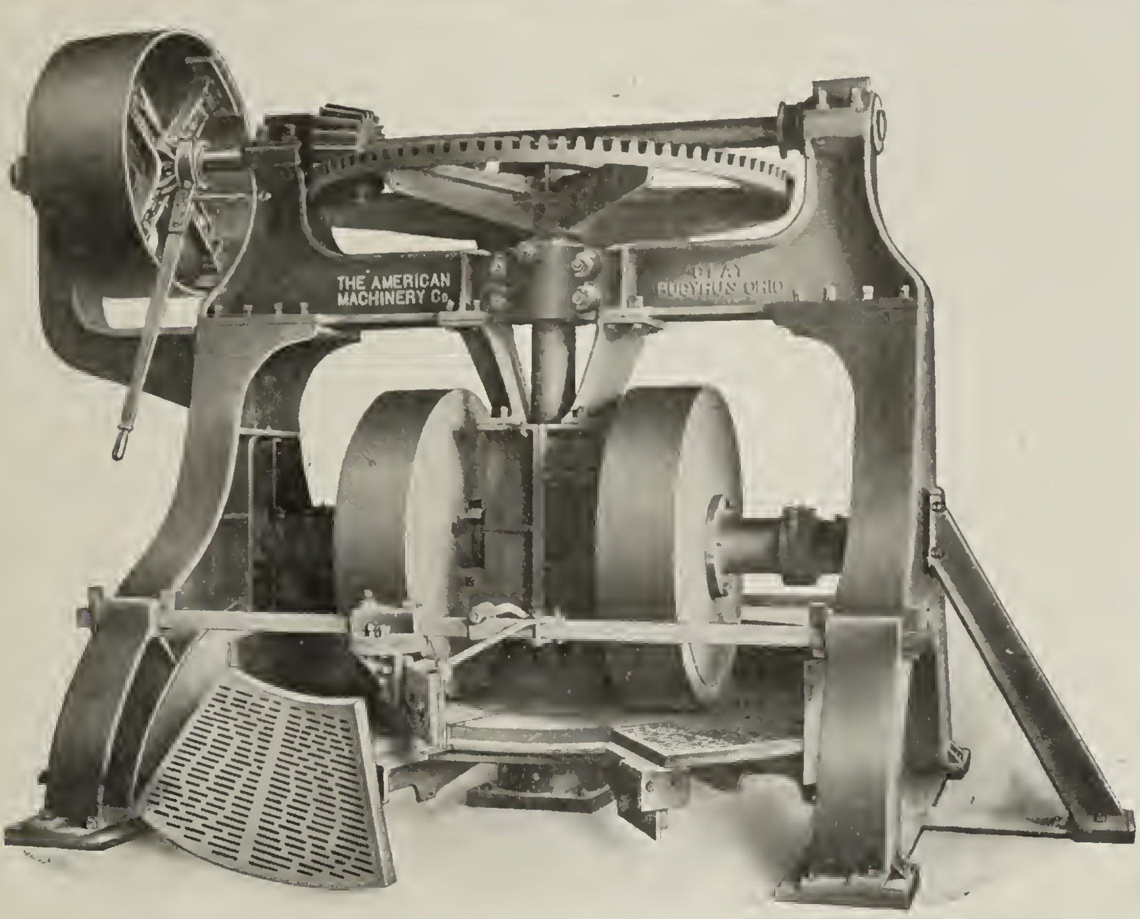

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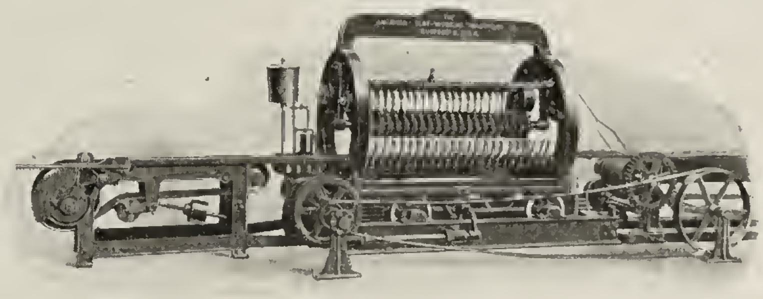

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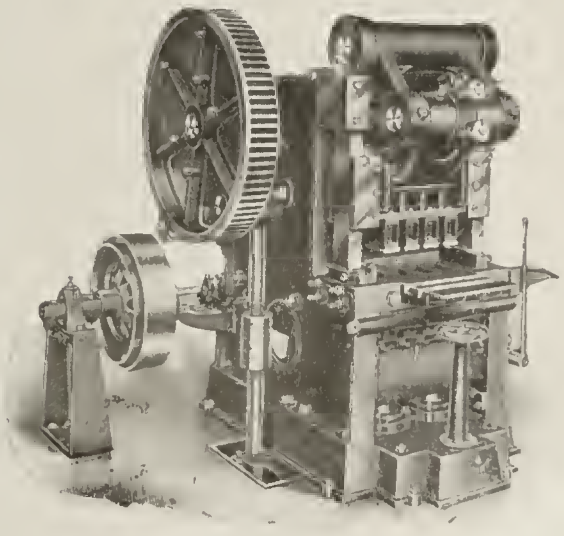

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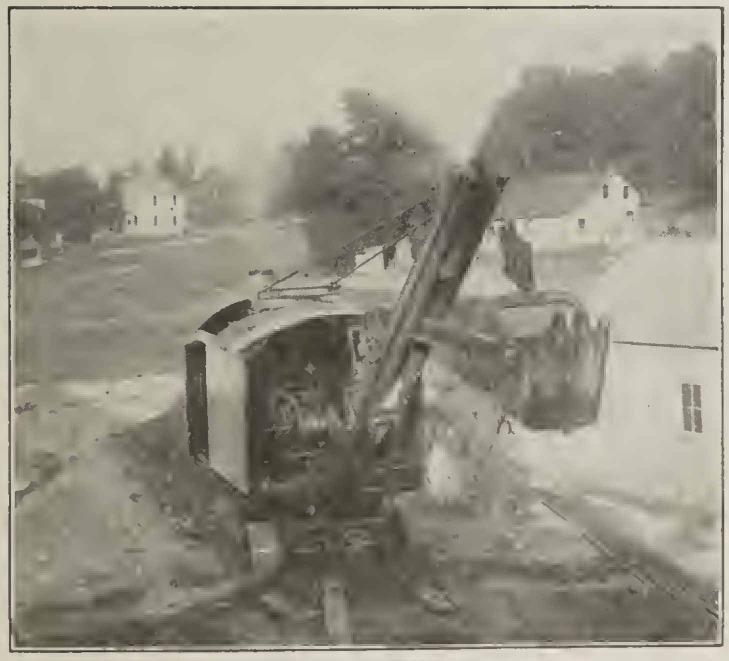

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THE AMERICAN CLAY MACHINERY CO., Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

THE SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

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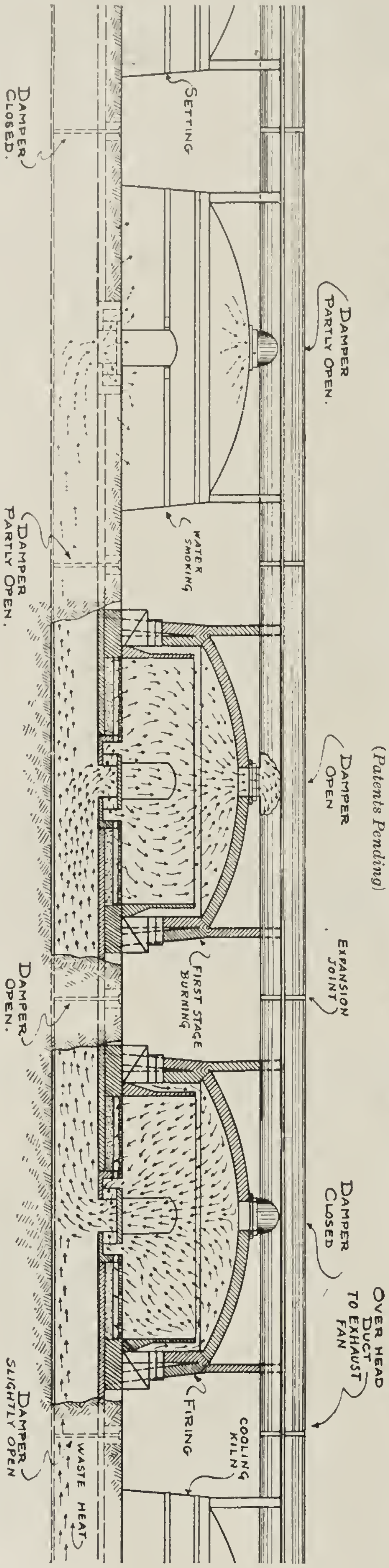

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It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

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Seeco Systems Secure Success in Old Plants as well as new.

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started is that planned by the Layman Realty Company, an apartment house of brick construction to cost $30,000.

Trouble with the iron workers, which threatened to hold up work on the Fletcher Trust & Savings building now going up, has been compromised and the men are back at work. The Contractors' Association claims that the men acted in bad faith in the strike, as, although a wage agreement, supposedly good for one year, was signed with the iron workers Dec. 13, they were on strike in less than one month, asking an increase to 70 cents an hour. They had signed up for 65 cents, but the compromise gives them 68 cents.

Out in the state a number of big projects are afoot. Lafayette is to have a number of new buildings started as soon as the weather will permit, among them being the Lafayette Loan & Trust Company structure, the hotel to be built on the site of the old Pottlitzer cracker factory, the St. James German Lutheran school, and the Reifer's Furniture Company building, in all about $500,000 worth of work. A number of fine residences are being planned, the brick veneer construction ruling a strong favorite among these proposed dwellings. The American National bank is to build, but the plans have not reached such a stage that an early start can be predicted.

Louisville, Ky.

Activity among brick manufacturers is at its lowest ebb, so far as Louisville and vicinity are concerned, only one plant being in active operation. Most of the companies accumulated sufficient reserve stocks to last them through the Winter before shutting down at Christmas time and hence, although the weather has for the most part been sufficiently mild to enable operations to continue without much difficulty, the manufacturers are awaiting the resumption of building activity before reopening their plants.

Prospects for 1914 are regarded as being much brighter than were those for 1913, when the fear of radical National legislation and other factors operated to depress business. There are no such large building operations in sight as there were in prospect or on hand a year or so ago, but it was pointed out recently by a local brick man that few of the larger jobs, notably the skyscrapers, did local brick makers any good, and that the kind of work which is looked for this year, such as a large number of small residences, will be far more welcome than were the large buildings of the past year or two.

The Louisville Brick Company closed its plant December 1, and will not open up until the weather becomes milder and building begins. The company has about 800,000 brick on hand at present, and these are believed to be sufficient to last until things open up again. Deliveries are being made on a good-sized job which is in progress at Seventh and Magnolia streets, in Louisville, calling for 300,000 brick. This is an addition to one of the ice plants of the Merchants' Ice & Cold Storage Company. Other business is very light, very little work being done in the city at present.

As was expected, the records of the Louisville Board of Trade for 1913 showed that shipments of terra-cotta and tile fell off to a marked extent as compared with 1912, while receipts showed an even greater decline, this being the case because of the lessened amount of building during 1913. The records of the Board do not show the movement of brick, as most of the brick manufactured locally is for local use, and by reason of the predominance of Louisville brick in buildings erected here, it has been considred that any statistics showing railroad shipments and receipts would be misleading, rather than informative.

The East End Brick Company, after a shut-down of five days during the holidays, has been going ahead with manufacturing, turning out about 25,000 brick a day. Of this output 15,000 are delivered on orders, leaving a surplus for stock of 10,000. As the regular Summer demand runs around 35,000 brick daily, a reserve stock is essential. Busy days sometimes call for 75,000 brick during the height of the busy season. Small orders are the rule at present, jobs of five to ten thousand brick being the rule. The company received the contract for the brick to be used on Parr's Rest, a good-sized job which has been under construction for some time, and several handsome residences are also under way for which it is supplying the brick.

The Spring outlook is bright for sewer work, in the opinion of A. E. Livingston, of the H. B. Milliken Sewer Pipe Company. There is very little doing at present in that line, however, the cold weather of the past week or so having effectually discouraged any work not absolutely necessary.

M. J. Bannon, president of the P. Bannon Pipe Company, left recently on a trip through Kentucky and Indiana, principally for the purpose of inspecting the company's brick and pipe plants, and incidentally for the purpose of buying any others that look good. Mr. Bannon expressed himself as looking for a good year, general business conditions being good, and the comparatively small amount of street and sewer work handled last year in this section making it fairly certain that 1914 will be busy in those lines.

The Coral Ridge Clay Products Company is building its fourth round down-draft kiln, having torn down the temporary kilns which were erected last Summer for the purpose of enabling the company to fill pressing orders for immediate delivery, as well as to furnish brick for its own plant. Each of the new kilns requires about 65,000 brick. The shale available at the location of the plant is first class, and the company is looking for a prosperous year.

The Ashland Fire Brick Company, of Ashland, Ky., is a new member of the Kentucky Manufacturers' and Shippers' Association, which includes within its membership several other makers of clay products. The most important matter before the organization at present is that of getting through the legislature the workmen's compensation act which it has had drafted, and which, it is said, makes ample provision for the adjustment, without litigation, of claims arising out of industrial accidents. It seems at this time, however, that while legislation along this line will probably be adopted by the

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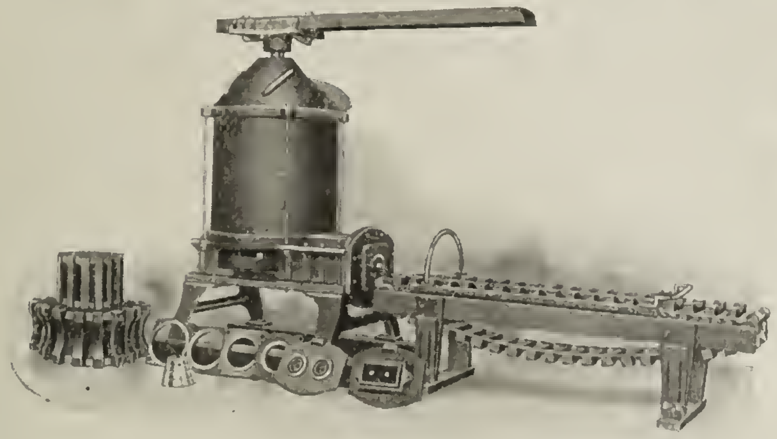
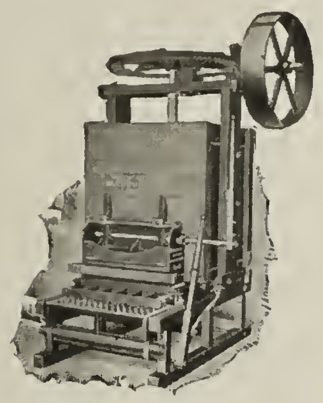
BUCYRUS, OHIO

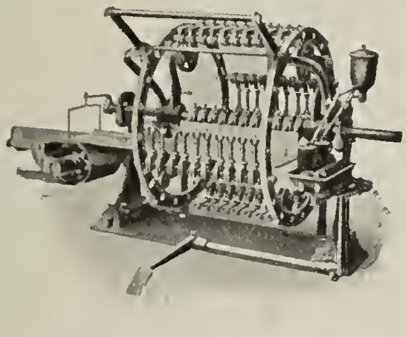
The Haigh Continuous Kiln



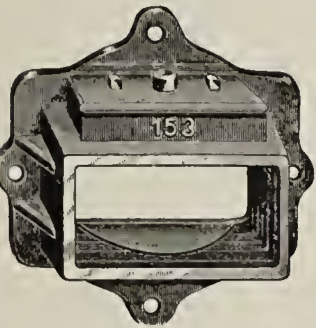
American Plungers Are Best



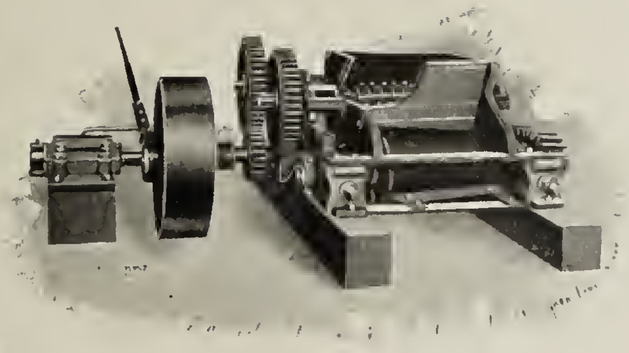
Soft Mud Brick Mchy.



American Cutter Quality

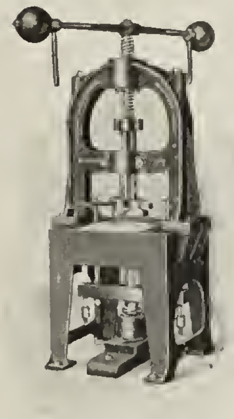


All Kinds of Dies

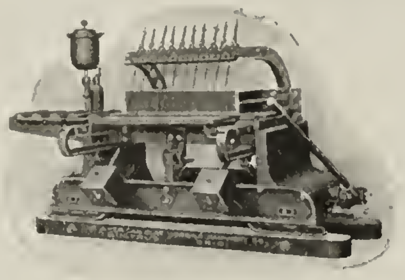


American Crushers, All Sizes But One Quality

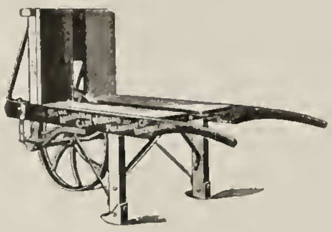
Sand Dryer



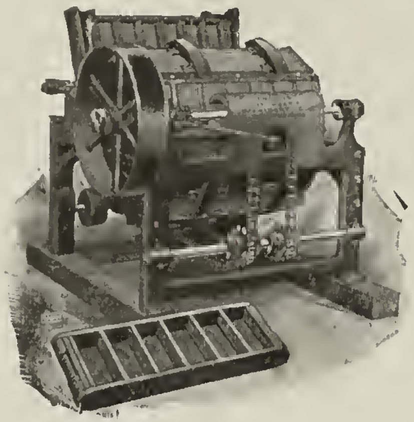
Hand and
Power Presses



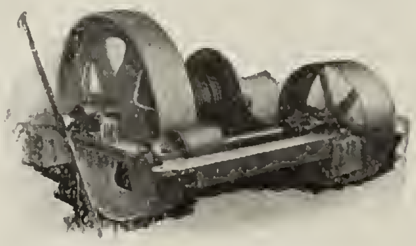
Numerous Cutters



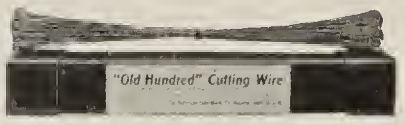
Quality Barrows



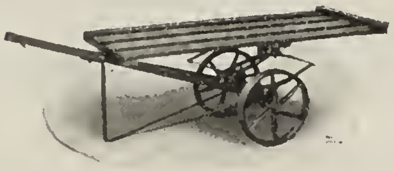
American Mold Sander



Power Transmission



American Cutting Wire



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Partial List of Machines We Build For Clay Workers

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Auger Brick Machine
Barrows and Trucks
Blowers and Fans
Brick Dies
Brick Setting Machinery
Brick Conveying Machinery
Buffing Machinery
Clay Steamers
Clay Feeders
Combined Auger Machine and Pug Mill
Conduit Machinery
Conveyors
Crushers
Cutting Tables
Cutting Wire
Drain Tile Machinery
Disintegrators
Dry Cars
Dryers
Dry Pans
Dry Press Brick Machinery
Dump Cars
Elevators
Elevating Platform Cars
Electrical Driven Clay Working Machinery
Engines and Boilers
Fire-Proofing Machinery
Flat Cars
Floor Tile Machinery
Friction Clutch Pulleys
Granulators
Gravity Haulage
Hand Power Presses
Hand Winch
Hoists
Hollow Building Block Machinery
Jacks
Kiln Irons
Molds
Mold Sanders
Paving Brick Machinery
Plunger Machines
Pottery Machinery
Pug Mills
Pulleys, Couplings, Hangers, etc.
Reduction Mills
Represses
Rock Crushers
Roofing Tile Machinery
Rotary Dryers
Runner Brick Press
Sand Dryer
Sand-Lime Brick Machinery
Screens
Sewer Pipe Cutting Tables
Sewer Pipe Dies
Sewer Pipe Presses
Sewer Pipe Trucks
Sizing Machinery
Slip Spray Pump
Soft Mud Brick Machinery
Steam Pump
Steam Trap
Transfer Cars
Turntables
Unloading Device for Pans
Wet Pans
Winding Drums
Winches

The American Clay Mchy. Co.
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Wallkill, N. Y.

legislature now in session, no bill will be adopted as introduced, as the labor interests and others propose to introduce bills embodying their own ideas. A compromise measure is the logical result to be expected. There is at present no workmen's compensation legislation in Kentucky, and the Bluegrass State desires to get in line on this matter.

Among the items in the appropriation ordinance recently adopted by the city council of Louisville, making provision for the expenditures of the municipality for the fiscal year ending August 31, 1914, was one of $273,220 for street reconstruction and one of $139,006 for street repairs. It is not yet known what materials will be used on the various jobs involved in the estimates made by the city engineer, but it seems certain that brick will be named for most of the work, which means that a considerable part of the $412,000 for street work appropriated will go to brick manufacturers.

Birmingham, Ala.

Weather conditions in Georgia, Alabama and Florida have been ideal for building operations the entire Autumn and Winter. In fact, the entire South has had very little severe weather. Under such favorable conditions building operations have gone on with great progress. Contractors have made good use of the excellent weather and work has been almost continuous. Much of the building done in Alabama has been of brick, the spirit of better building being noted all over this part of the country. Brick men have had the greatest business in the history of this district, the building inspector's report showing nearly six and one-half million dollars worth of buildings in this city for the year just past. It is a safe and conservative estimate to state that fully four-fifths of this amount was done with brick, either exclusively or for fill-in work on the several large steel skeleton buildings that have been put up within the past twelve months. Weather conditions have been ideal, labor troubles have not been of any consequence, the general car shortage has been felt only at short intervals, and all these things have made trade conditions as a whole, good, and given prosperous times to brickmakers.

Nearly every plant supplying this trade has been able to run most of the year, only a few are carrying stock for emergency demands. Notwithstanding the fact of the Sibley-Menge Brick company being in bankruptcy, the receiver, Mr. Edward Hill, has kept the plant going and has filled the orders the company had on hand at the time of bankruptcy proceedings, orders from Louisiana, Mississippi, Florida and other Southern states being filled promptly. Of the large number of brick buildings put up, the home plants have furnished the greater part of brick used. In some instances, outside brick has been used, this is more especially true as to artistically textured brick and odd colors.

The L. L. Stephenson Brick plant at Lovick has had good business most of the year. This plant recently installed electric power, each machine having a separate motor. Mr. Stephenson expresses himself as more than pleased with the use of electrical energy. He also states that prospects for further continuance of good orders is bright. This plant sends it face-brick to Georgia, Florida and Mississippi and other Southern states. It is represented in Birmingham by the Brick Selling Company.

Copeland-Ingles Shale Brick Company, which makes paving brick exclusively, expresses satisfaction with last year's trade. They had no serious trouble from car shortage and no labor troubles. The company ships large quantities of brick to Florida, and as there is an immense amount of construction work of sewerage and road paving projected in that state for next year and as Birmingham is the nearest point manufacturing paving brick, this company expects to receive a large share of this trade. The Graves Shale Brick Company will also supply some of the Florida demands.

Bright prospects for the brick trade are seen, not only in the Birmingham district, but at several points in Alabama, the growth and use of brick increasing at a very rapid pace. Despite the fact that the building permits for Birmingham last year were over Six Million Dollars, already there are enough buildings projected to go above the amount named. The same good news comes from all over Alabama. At Mobile and Birmingham P. H. Kress company will erect handsome brick buildings. The Woolworth people are having a handsome brick store constructed for them by F. H. Nelson, Jr. Cullman will build a large St. Bernard College; Florence, Ala., a cotton mill. At Gadsden, Ala., several brick stores are to be put up.

Georgia.

Georgia is experiencing a great boom in brick work and many new buildings are projected for the ensuing year. The Baptists of Cordele are to build a $24,000 brick church. Butler, Dalton, Griffin, Macon, are to build several brick stores at each place. Atlanta comes forward with a handsome brick apartment house to cost $400,000, and a Hundred Thousand Dollar brick residence —Macon and Savannah with brick bank buildings. Social Circle is to have a cotton mill and Columbus besides several smaller buildings, is to put up a $750,000 hosiery mill, and Cochran, Ga., is to have a new court house. All of these structures will call for brick.

Florida.

The state of Florida offers the best prospects for brick business that it has ever had. From all parts of the state comes the news of some prospective use of burned clay. There is an immense amount of work projected which calls for use of brick in its various ways, from dwelling houses, schools, churches, stores, hotels and office buildings.

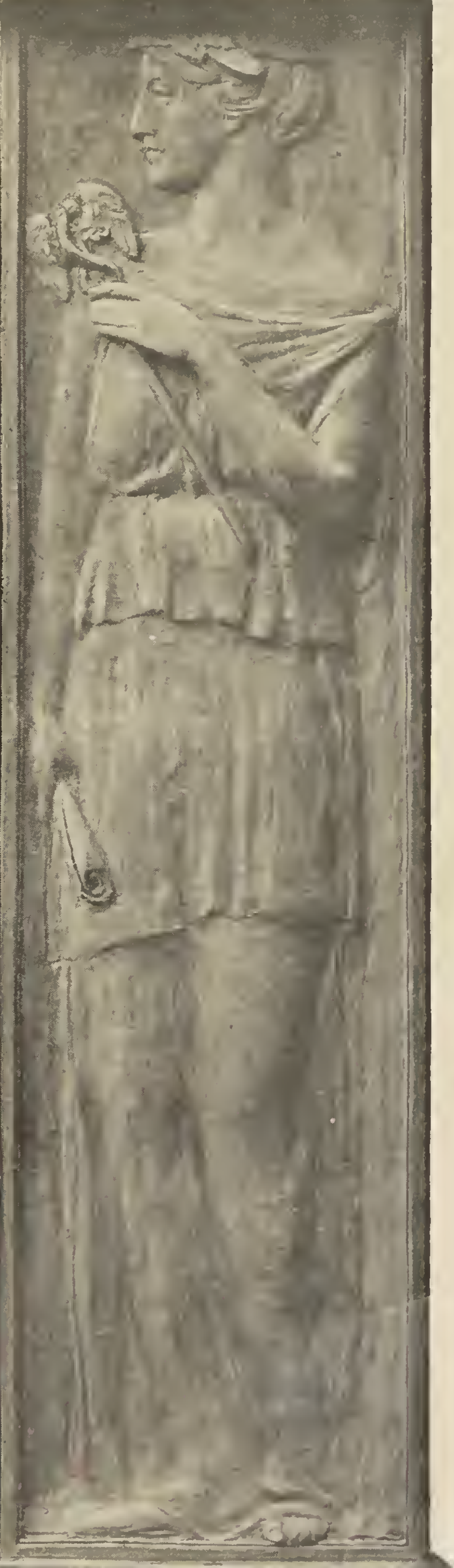
The ensuing year will witness the use of large amounts of paving brick, and sewer pipe. Many towns are issuing bonds for paving and sewerage purposes, the county of Hillsboro alone having a Million Dollar bond issue for road paving.

IN THIS NUMBER: CHALDEANS' TRIP TO NEW ORLEANS
REVIEW OF ALL CONVENTIONS HELD

BRICK and CLAY RECORD

W. P. VARNEY

VENERABLE NEBO, CHICAGO TEMPLE NO. 1
ANCIENT ORDER OF CHALDEANS



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The Layton, Pa., Plant of the Kier Fire Brick Co.

Sirocco

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Los Angeles, Central Bldg.
Seattle, Central Bldg.
Boston, 120 Milk St.

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

ALONG about February 28 a special train—one of the finest that ever started out on a railroad journey—will leave Chicago bearing a party of boosters to New Orleans. These boosters will have but two objects in view—to attract as much attention as possible to burned clay and its numerous advantages and to draw as big a crowd as possible to the annual convention of the National Brick Manufacturers Association.

These boosters will be the members of the Ancient Order of Chaldeans—the secret society of clayworkers which was launched at the 1913 convention of the N. B. M. A. in Chicago last March.

The special train will NOT be an exclusive one. On the other hand it will be for ALL clayworkers who wish to attend the conventions at New Orleans and to make the trip in comfort and who wish to take advantage of the entertainment so kindly offered by the Chicago Clay Club.

The Chaldean Order, although young and barely out of its swaddling clothes, is a most healthy organization.

Founded for the distinct purpose of bringing all clayworkers together in a FRATERNAL spirit and with a CONSTRUCTIVE rather than a DESTRUCTIVE platform on which its work is conducted, there is every promise it will grow and develop until it has spread its doctrines to every locality where there is a clayworker.

The motto of the Order is, "Boost—it never hurts."

And, with this ever before its members, the Chaldean Order goes out into the world to do whatever it can for burned clay and the various organizations that have been formed to advance its interests.

The Order does not propose to take over the work of any other organization. Its work is distinctively its OWN and does not CONFLICT in ANY manner with any of the Clayworkers' associations.

Questions of manufacture, of salesmanship or any other problems that confront the clayworker, do not enter into the temples of the order. These are left to those societies and associations that have chosen to handle these matters.

What it PROPOSES to do is to bring ALL clayworkers together in a SOCIAL way—to develop FRATERNAL spirit—to UNITE all factions in one great body of FRIENDS—to supply amusement and entertainment—to INCREASE THE INTEREST of clayworkers in the organizations that already exist—to BOOST clayworkers and clay products wherever possible.

An order with basic principles such as these, must live and continue to grow.

There is a ROOM for it in the clay product field.

There is a NEED for it—a REAL necessity.

We, as clayworkers, are too prone to CRITICISE others without JUST cause.

FACTIONS and PETTY politics play too important a part in the various branches of the industries.

There is a lack of HARMONY.

There is a feeling of DISTRUST—of suspicion.

No body of men—no industry—can thrive or get the BEST out of business that permits INTERNAL DISSENSIONS—that lacks HARMONY—that overlooks the advantages of UNITY in action and thought.

The Chaldeans want to see all clayworkers FRIENDS. They want to see them meeting together in a FRATERNAL spirit.

With this desire accomplished the industry as a whole will thrive.

And the best and the easiest way to accomplish these purposes is to bring the members of the industry together in some such an organization as the Chaldeans have formed.

The Editor's Corner

The special excursion to New Orleans proposed by the Chaldeans is a big undertaking. It is something that never has been attempted in the clay industry—or at least on such a large scale.

And every clayworker, who has burned clay at heart, owes it to HIMSELF and to HIS INDUSTRY to go to New Orleans in March and, if possible and convenient, to join the Chaldeans and their friends on this excursion.

The train schedule and route, as printed elsewhere in this journal, has been arranged to suit the convenience of the great majority of clayworkers.

Members of the Order and ANY clayworker can take this train at Chicago—the starting point, or at any point along the line.

Do so wherever practicable.

Help make the excursion a GREAT BOOST for burned clay.

Help make it a GREAT MEDIUM for attracting a record-breaking attendance to the National Convention.

Be a BOOSTER and join the Chaldeans. It "Never Hurts."

CLAYWORKERS are urged to attend the twenty-eighth annual convention of the National Brick Manufacturers' Association which will be held at New Orleans March 2-7. The session promises to be one of the best in the history of the organization and that is promising much.

The year 1913 was a very profitable year for the clayworker, generally speaking.

With the exception of a few isolated cases, the manufacturer of clay products got better prices than previous years and found a demand that was favorable in comparison with previous "good" years.

The Nation-wide publicity movement and the revived interest in association work had much to do with this gratifying condition.

The N. B. M. A. and its members took an important part in this work.

Many plans for the betterment of conditions will be discussed at New Orleans and it behooves every clayworker who is progressive and who is desirous of not only strengthening his own position in the industry, but also that of clay products in general in the affairs of the building and construction world, to be present and participate in this discussion.

New Orleans affords an ideal spot for a convention at this time of the year. Its soft, balmy Summer weather—not too warm and never with the chill of the Winter blasts that the less-favored Northern clayworker has to contend with, will prove a most enticing invitation.

The quaint buildings and odd streets, with their people of equally as interesting characteristics, are going to be strong attractions to the tourist.

But, aside from all the pleasure features of the Crescent City, there is the convention itself which should prove a strong magnet.

Plan to attend the convention. Consider it a part of your year's expense in manufacture. Look upon the cost of the trip as an essential—just as much as you do the purchase of a machine—of the employment of labor or the preparation of a selling campaign.

The Annual Convention is an asset to any clayworker. It not only affords the opportunity to come in contact with other progressive manufacturers and learn how they accomplish things, but it gives him the chance to hear what experts say about the problems that confront the industry.

Do not look upon the Convention as an opportunity solely for enjoyment and pleasure.

Take a note book with you. Jot down all the good things you hear and determine to make your trip a PROFITABLE one.

The Annual Convention is a school of experience where clayworkers find much of value. Attend that school this year.

If You Are Going to New Orleans—

If you plan to attend the Annual Convention and wish to go on the Chaldean Special De Luxe Train, write W. P. Varney, 301 Chamber of Commerce, Chicago. He will give you any information desired, and provide reservation for hotels or sleepers, if so requested.

A Leader of Chaldeans

Being a Little Something About a Man that was Chosen Among Many to Guide the Launching of the New Order of Clayworkers

W. P. Varney, V. N.*

Manager Chicago Branch, Hydraulic Press Brick Company

WHEN the twelve men responsible for the birth of the secret society among clayworkers—the Ancient Order of Chaldeans, began to look around among themselves for a leader, they made a careful survey of the material at their disposal and deliberated . "He must be strong of heart," said one. "He must be full of wisdom and compassion," said another. "He must have a keen insight into the future and be an executive," said still another.

Then they looked again among themselves and they saw William P. Varney standing among them and, with accord, they placed the scepter in his hands and gave to him the leadership.

Launching a secret order of national importance is no small undertaking, for there are many shoals to negotiate and innumerable dangers in the course.

William P. Varney, however, is used to difficulties. He has been overcoming what looked like unsurmountable obstacles all his life.

Therefore, this matter of sending out an untried craft onto the seas of an ever-timid industry was but an incident—a mere matter of effort and initiative, of which he was master.

And so he took hold and the seas calmed down and the Craft of Uncertainty became one of Reality.

That the Chaldeans chose well when they made him the first Venerable Nebo of Chicago Temple, No. 1—the parent organization, is not gainsaid today.

The success of this young order is ample attestation of this assertion.

Mr. Varney is a born executive and to that attribute is due the realization of his dreams and that of the eleven others who set about to draw together the clayworkers of the Nation into a great fraternal band.

When still of a very tender age he began to rule men. His first serious job was nearly a quarter of a century ago, when he became superintendent of the New National Press Brick Co., Washington, D. C.

It was not long, however, before his executive ability was recognized by others and, after three years of service at the Nation's capital, the Hydraulic-Press Brick Company—now the largest concern of clayworkers in the world, seized upon him and took him into their organization.

For more than a score of years Mr. Varney has held executive positions with this institution—now guiding the destinies of their largest branch—the Chicago office, with its great territory and enormous output.

Like the Chaldeans—the Hydraulic Company chose well. Long live Varney!

Portrait on Front Cover.

The Chaldean Special as it Will Look in Kentucky.

Chaldeans Blaze Trail To New Orleans

For the first time in the annals of claycrafting, a Train de Luxe, its length taxing the strength of a modern Mogul engine, will bear clayworkers to their Great Annual Congress. In the brief description that follows, a few of the interesting points of this trip are touched upon.

WITH some one hundred or more boosters for burned clay and the New Orleans conventions, a train will leave Chicago on the night of Feb. 28. It will be one of the best appointed *de luxe* specials that can be secured and will blaze a trail of goodfellowship throughout the journey to the Crescent City.

The special will be run under the auspices of the Ancient Order of Chaldeans—the secret society of clayworkers launched at the 1913 convention of the National Brick Manufacturers' Association in Chicago last March.

Not only will members of this organization be passengers on the *de luxe* special, but all clayworkers who desire to partake of the Chaldean's hospitality.

The train will be composed of twelve-section Pullmans, diners, library, observation and buffet cars, with the usual baggage accommodations, and special sleepers for Chaldeans and clayworkers who want to take their wives or families.

Huge banners proclaiming the object of the trip—boosting burned clay and the N. B. M. A. and kindred organizations, will be stretched on both sides of the train.

A band of some sort—probably the Scotch Kilties of Toronto, Canada, will make the necessary noise to attract attention and entertain the natives of Dixie as the train rushes through the Southland.

The route mapped out for the trip will be from Chicago to Cincinnati over the Monon route and the rest of the journey via the Louisville & Nashville Road. It will take in Indianapolis, Ind., Cincinnati, Ohio, Louisville, Ky., Nashville, Tenn., and Decatur, Birmingham, Montgomery and Mobile, Ala. The return trip will be by the way of the Louisville & Nashville road and the C. E. & I. R. R. but no special train will be provided, each excursion ticket holder selecting his own time for the homeward journey.

One of the pleasing features about the trip will be half a day's stop at the Mammoth Cave, in Kentucky.

Every accommodation that will tend to the convenience and pleasure of the passengers will be supplied by the Chaldeans. The entertainment portion of the program *en route* will be in charge of the Chicago Clay Club which proposes to supply all necessary entertainment, refreshments and cigars free of charge.

The only charge made on the train will be the special excursion fare and Pullman rates in force at that date. In other words, it will cost no more to ride on the Chaldean special than it will to take one of the regular trains. The

Busy Thoroughfare in Atlanta, Ga.

A Street in Nashville, Tenn.

passengers on the Chaldean train, however, will have the special accommodations and the entertainment that will be provided and will also have the added advantage of going to New Orleans "with the crowd."

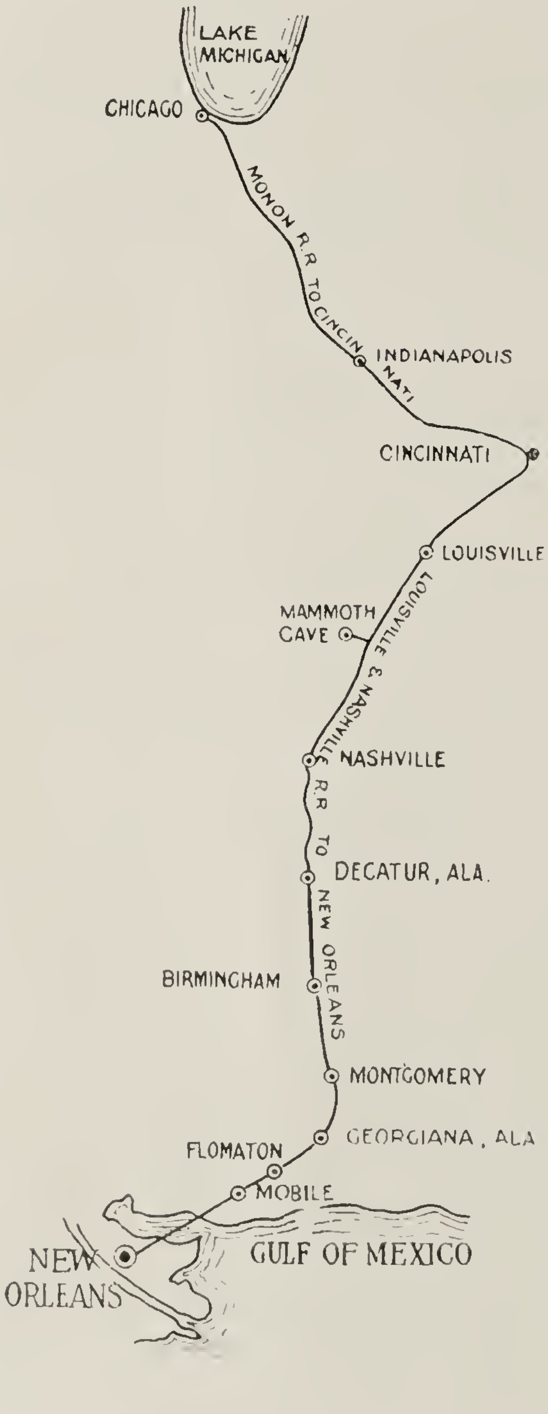
There are three objects of the trip.

First, to draw a great attendance to the N. B. M. A. convention.

Second, to give Burned Clay a big boost.

Third, to take the members of the order to the Second Annual Session of the Supreme Temple which will be held in New Orleans during convention week.

The route selected by the Chaldeans for the Special is one that will appeal to the majority of clayworkers. The train will leave Chicago over the Monon at 10:05 p. m., Saturday, Feb. 28. It is expected that not only members of the Supreme Temple and Chicago Temple No. 1 will be passengers when the train departs, but also that large delegations from Michigan, Wisconsin, Minnesota, Iowa and other western and northwestern states will be aboard.



Round trip excursion tickets may be bought at any point in these states, by way of Chicago for the Chaldean Special, without any additional cost.

Those clayworkers living in the northern part of Illinois and Indiana can join the special at Chicago and start with the excursionists. In most of these cases they will be able to buy their tickets without an additional fare—this being especially true of those clayworkers living in Rock Island, Ottawa, Peoria, LaSalle, Utica, Galesburg, Streator and other similar points.

Clayworkers in the central or southern portions of Illinois and Indiana probably will find it more convenient to take the special at Indianapolis.

The Chaldeans and their clayworking friends living in Ohio and points east will find it convenient to meet the special at Cincinnati or Louisville.

At other points along the line—in Tennessee, Alabama and other southern states, convenient stops are to be made and where clayworkers find other points along the route more convenient to them, special stops will be made if sufficient notice is given the transportation committee.

The train, as stated, will leave Chicago at 10:05 p. m. Saturday, Feb. 28. The first stop will be at Indianapolis, where, it is expected that Secretary Randall of the N. B. M. A. will have made arrangements for a sleeper to be attached to the Chaldean special when it arrives there at 3:20 a. m. Sunday, March 1. This, of course, depends upon the number that will wish to take the train at that point. Should the number not be sufficient for a full Pullman sleeper, accommodations will be provided on the train for those that wish to make the trip.

The Chaldean special will arrive at Cincinnati that same morning at 7:15 o'clock and is scheduled to leave that city at 8:15 a. m. The eastern delegation will be taken aboard here and it is probable that a sufficient number will be at this point to provide for an additional sleeper.

At 8:15 a. m. the special will start for Louisville, arriving there at 11:35 a. m. A stop long enough to take on the Louisville contingent will be made and then the journey will be resumed. The train will arrive at Glasgow Junction at 2:15 o'clock that afternoon—Sunday. A special train will meet the tourists and take those that wish to inspect the famous Mammoth Cave over the narrow gauge road to the world's wonder. This trip will occupy three hours. Those that do not wish to make the side trip may remain in their cars on the Chaldean special, which will be sidetracked until the rest of the party returns.

At 7 o'clock that evening the Chaldean special will depart from Glasgow Junction for Nashville, Tenn., arriving there at 9:30 o'clock Sunday night. The Chaldeans and clayworkers in that city and vicinity will be taken aboard and the train will continue its way through the South.

The first stop will be at Decatur, Ala., at 1:10 a. m., Monday. It is expected that many clayworkers from Chattanooga, Knoxville and other points East will meet the train at this point. If there is a sufficient number a sleeper may be attached.

The Bridal Altar in Mammoth Cave.

Birmingham will be the next stop, the special arriving there at 4:15 o'clock Monday morning. The special arrives at Birmingham, Ala., at 4:15 a. m., at Georgiana, Ala., 8:30 a. m., and at Flomaton, Ala., at 10:00 a .m. These stops will make it convenient for the members of the order and their clay-working friends in that section of the South to join the "Boosters."

The next stop will be at Mobile, Ala., the special arriving there at 11:50 a. m. Monday morning. The rest of the route is along the Gulf coast, the special passing through the famous winter resorts that line the water. If the schedule is observed, and the Louisville & Nashville road assures the Chaldeans it will be, the train should reach New Orleans at 4:10 p. m. Monday afternoon, in time for dinner.

The trip is to be made as pleasureable as possible. P. W. Morrow, Northwestern Passenger Agent for the Louisville & Nashville road, will conduct the excursion personally and see that every comfort is provided, and that the schedule is carefully observed.

The side trip to Mammoth Cave, which will be made Sunday afternoon, will afford many the opportunity for the first time of seeing this wonderful work of water in sculpturing the surface of the earth.

It is impossible to mention, less possible to describe, all the objects of interest to visitors in this most gigantic cavern of the world. In no respect have its attractions failed to meet the expectations of the intelligent visitor. To the unintelligent its story is as little understood as would be the famous lyrics of Homer or the marble poems of Praxitiles. The shells and corals which dot the walls of Echo River or boss the smooth walls of Gorin's Dome tell a story to those alone who have some intimate acquaintance with Nature.

The blind insects—beetles, crickets, mites, gnats—the eyeless fish and crustaceans and leeches, the snow-white toadstools, all are meaningless to those who have never questioned the physical cause of vision.

The naturalist will find here a paradise—forms of life that are unique, that range from vertebrate to worm, and these all tell him a story of antiquity and of life-law that only a naturalist may interpret. But if the visitor seeks the grand and impressive, if there be attraction in Stygian blackness, if the uncanny noises accompanying waters falling in recesses that have yet escaped search, if the unison of sounds coming from the dark and unfathomed recesses of Echo River back to the ear with a harmony and beauty that no cathedral note ever yet equaled, find a response in any human heart, then Mammoth Cave will never cease to attract visitors of every degree and from every land.

Perhaps the largest single rock to be found as a detached mass, is the Giant's Coffin. It is estimated to weigh 2,000 tons. Among some of the other "attractions" in the cave are the remarkable Pass of El Ghor—a tortuous, narrow, but lofty channel; the Rotunda, Audubon Avenue, Olive's Bower, Spark's Avenue, the Pillar of Hercules, Caesar and Pompey, the Oak Tree, the Bridal Chamber, the Giant Chair, the Elephant's Head and Lover's Trap. There are scores and scores of other interesting points about the cave, but these suffice to give a faint idea of the glories and beauties that await the Chaldeans.

Those that expect to make this side trip will find a special train awaiting the arrival of the Chaldean Special. When there are fifty or more to take this trip a reduced rate of $1.50 for the round trip is made, which includes railroad transportation, admission into the cave and guides. When less than 50 go, the rate is $2 per each person.

While the ride through Tennessee and the northern part of Alabama will be made in the night, the greater part of the journey through lower Alabama and all the way along the Gulf coast will be in daylight and the glories of the fair southland will be unfolded to the clayworkers as the special hurries towards New Orleans.

It is possible that short stops will be made at some of the Gulf resorts to permit the tourists seeing these world-famous winter homes. No part of our country contributes a more varied interest in a romantic past, or appeals more

Corkscrew Path in Mammoth Cave.

In the Business District, Birmingham, Ala.

Alabama River at Montgomery, Ala.

strongly to the joy of living in the present, than that portion of the Gulf coast that lies between New Orleans and Pensacola. Here are landlocked waterways and protected harbors where great ships of the deep, and pleasure craft, alike, find safe refuge. Here, too, is the salt-water fishing that furnishes so worthy a pastime to the veteran sportsman; while in the wooded hills that lie back of the shore line are birds of every feather, congregated from all the northern climes, in their winter home.

Throughout this region the climate is ideal—soft winds from off the sea mingle with the breezes from the southern pines, the salt air is balmy, and the fragrance of the evergreen forests is health-restoring and restful.

Bienville Park, Mobile, Ala.

Those who contemplate making the trip to New Orleans on the Chaldean special are requested to write to W. P. Varney, chairman transportation committee, 301 Chamber of Commerce Building, Chicago, and make reservations. State in your letter where you expect to take the special—at Chicago or some point along the route. If you are in doubt as to the cost of tickets full information will be supplied you on request. If you want hotel reservations made for you at New Orleans so request, stating what you require and amount per day you wish to pay.

The return trip from New Orleans will be made by way of St. Louis or Evansville. There will be no special train, as most of the excursionists will want to return home at their leisure. In purchasing your ticket, however, via the Chaldean De Luxe Special, specify to your ticket agent by which route you prefer to return—via St. Louis or Evansville.

This arrangement will permit anyone extending their visit in New Orleans, if so desired, or allow time for special side trips to Panama, Cuba, Mexico or other points of interest.

It is the intention of the Chaldeans to make the trip to New Orleans and the stay in the Convention City one that will appeal to every interest of the members and their guests. To this end clayworkers are urged to make any reasonable request for reservations and other service. Mr. Varney and his associates have a list of hotels and boarding houses with rates, as well as all other information that may be required. Information also is in hand on all railroad fares. For instance, no matter where you may live—provided it is within the zone of the Chaldean Special, by writing to Mr. Varney you will be informed what the special round trip fare to New Orleans will be, the Pullman charge and what road you will have to take.

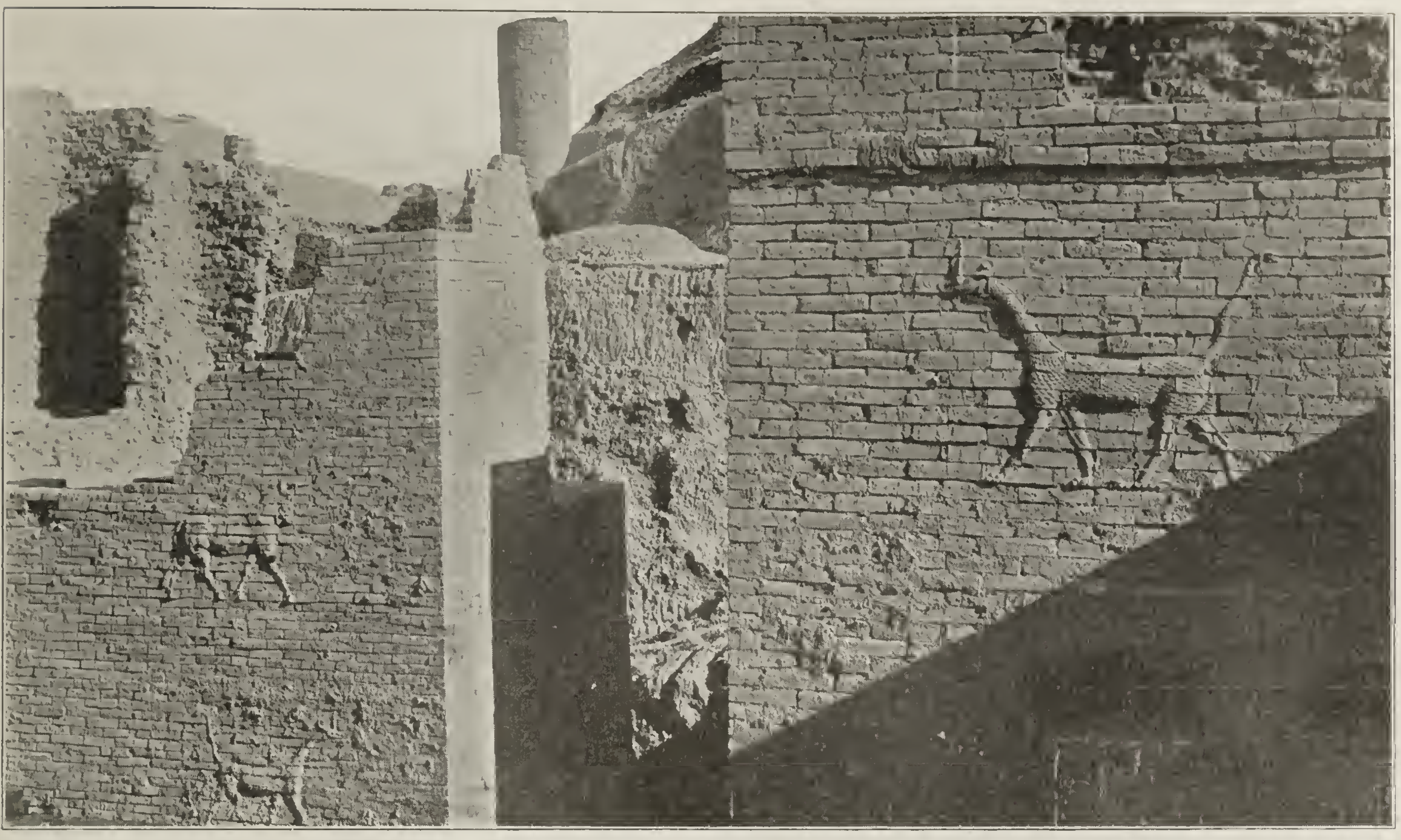
New Parcel Post Helps Clayworkers

There is no doubt, excepting in the offices of the various express companies, that the Parcel Post has worked out splendidly. It has only had a short time in which to demonstrate its many good points, but those who have had dealings with it, are a unit in its praise. The announcement of its further extension will, as a consequence, be received with a great deal of pleasure by the average clayworker. The main items of the new plan are as follows:

The weight limit for packages in the first and second zones is increased from 20 to 50 lbs. This will permit the shipping of as many as eight face-brick samples within the prescribed distance. The weight limit to all zones beyond the second is increased from 11 to 20 lbs., allowing the shipment of three face-brick samples to any point in the country.

The rate to the third zone has been reduced from 7 to 6 cents for the first pound and 2 cents for each additional pound. For the fourth zone, the rate is reduced from 8 to 7 cents for the first pound and from 6 to 4 cents for each additional pound.

Similar reductions have been made in zones beyond the fourth and a comparison of these rates with those formerly asked by the express companies will be enlightening. There is, however, very little difference between these new Parcel Post rates and the reduced express rates that went into effect Feb. 1, noted on another page of this journal to which your attention is called.



Chaldea—Its People and Customs

Being a Brief Account of the Oldest Known Race in the World—a Nation of Clayworkers Who Discovered the Art of Claycraft and Around Whose Achievements the Ancient Order of Chaldeans was Founded

Explanation

The accompanying illustrations are from photographs taken by William Mellor, who, with William A. Myson, a Vancouver brickmaker, visited the ruins of the once-famous city of Babylon. Mr. Myson operated a brickyard in Arabia until recently, and it was through the good offices of Dr. Kolaway, chief in charge of the excavations now being conducted by the German Archæological Society at the ruins of Babylon, that these pictures were possible.

Many photographs have been taken of these ruins as the work progressed, but it is doubtful if any exist that show more clear detail. We especially refer to the one that heads this article.

Mr. Myson, in writing of the ruins and his visit to them, calls especial attention to the fact that all the brickwork of the palaces, mansions and better class dwellings were laid in bitumen which the Chaldeans undoubtedly obtained from the hills of Hit, three hundred miles up the river.

The Pictures

Picture No. 1—This illustration, which heads the article, is a remarkably clear one. It is of the famous gates of Istah. The mortar joints are clearly shown. The figures of the animals, if you observe closely, were molded in sections on the brick before being placed in the walls.

Picture No. 2—Arabs excavating and unearthing an old building. The mounds seen are brick rubble.

Picture No. 3—A part of the Processional Road which ran through the city. It was paved with brick and covered with bitumen. Jeremiah walked over this road as did Daniel. Mr. Myson and party are shown in this picture.

Picture No. 4—Ruins of Nebuchadnazzar's Palace covering four acres. Mr. Myson found a clay tablet here which he presented "Brick and Clay Record." Note the thickness of the walls. The palace proper is erected on a terrace, 30 feet high.

Picture No. 5—Ruins of the Tower of Babel, today an immense mound covering acres, with brick rubble more than 40 feet thick.

Picture No. 6—The only stone statue found in Babylon, and this is in an imcomplete condition. It can also be seen in Picture No. 2. Mr. Myson is seen sitting at the left.

Picture No. 7—A bird's eye view of Mr. Myson's brick plant. The hand-making section is in the foreground. Arab houses for tho leading hands are in the far background. Engine sheds, brickmaking machinery etc., from left to right, in front of the palm trees, barely discernible.

Believing that a brief recital of what is known of the Chaldeans, around which ancient people was built the ritual of the Ancient Order of Chaldeans, will prove interesting, "Brick and Clay Record" presents this article.

We are indebted to various publications on Chaldea for this data, particularly "The World's Progress," and to William A. Myson of South Vancouver, who, while running a brick yard in Arabia, had the opportunity of getting some first hand information from the party of German scientists who were then and are now engaged in excavations in the ruins of Babylon and other Chaldean cities.

Mr. Myson also took some very interesting views in and around the ruins, some of which are used to illustrate this article.

CHALDEA—around which and its people was written the ritual of the Ancient Order of Chaldeans, was inhabited at the earliest period known. The Chaldeans are the first human race of which we have written record. The fact that the people were masters in clayworking and left not only evidences of their handicraft in brick buildings, brick-paved streets, clay vessels and other

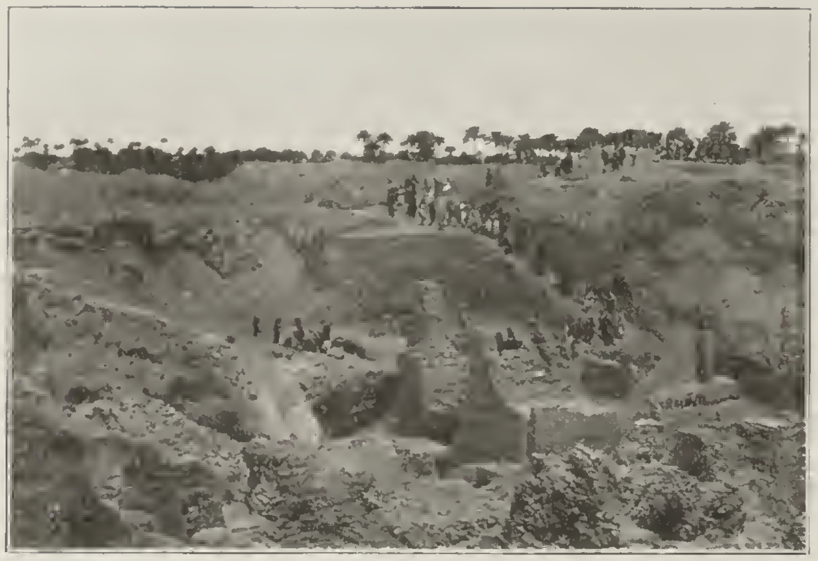


Fig. 2.

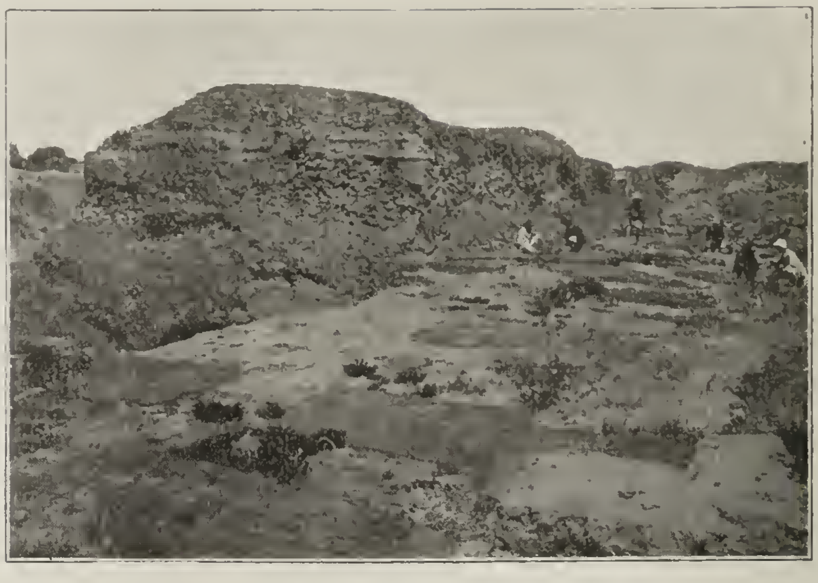


Fig. 3.

utilitarian objects, but actual records of their customs and religious rites, as well as their commercial and social life, in imperishable clay tablets, makes it possible today to give a fairly intelligent recital.

Perhaps the first settlers of Chaldea were a branch of the Furancan or Yellow Race, to which the Chinese, Japanese, Monguls and present-day Turks belong. That the Chaldeans came from some other locality into this land is not doubted, but from whence they came is clouded in mystery.

Chaldea was the land we now call Babylonia and embraced that portion of the valleys which extended around the Persian Gulf. The southern part of Chaldea was called Shumer and the land immediately north they called Accad. The dwellers in both sections came from the same stock and spoke, practically, the same language.

These early people may have migrated to Chaldea five or six thousand years before the Christian era, and there are scraps of tablets recently unearthed which seem to indicate that this is true.

When we first learn of the Chaldeans they had reached a high state of civilization, having canals for irrigating the lands unreached by the river and a cuneiform system of writing, far in advance of the picture system used earlier.

Our principal knowledge concerning the Chaldeans pertains to their religion, which is believed to have been one of the earliest religions of the world. A series of clay tablets treating on this ancient religion was recovered by Rassam, and they fall into three divisions—those treating on "Evil Spirits," those treating on diseases and last, those devoted to prayers and hymns of praise.

Chaldea was a most fertile land and early writers tell of the wonderful crops of wheat, millet and sesame seed. This fertility is what drew the primitive people to the valley unquestionably.

Possessing no rocks or mountains, the country offered little at first to the settlers in building material and it is possible they sheltered themselves in huts built of the reeds which grew abundantly along the banks of the Euphrates and Tigris. Later it was discovered that clay mud furnished a fair material when shaped into brick and dried in the sun, and somewhere, some five or six thousand years before Christ, the first clay product industry was developed and from that beginning comes the art and practices of the modern clayworker.

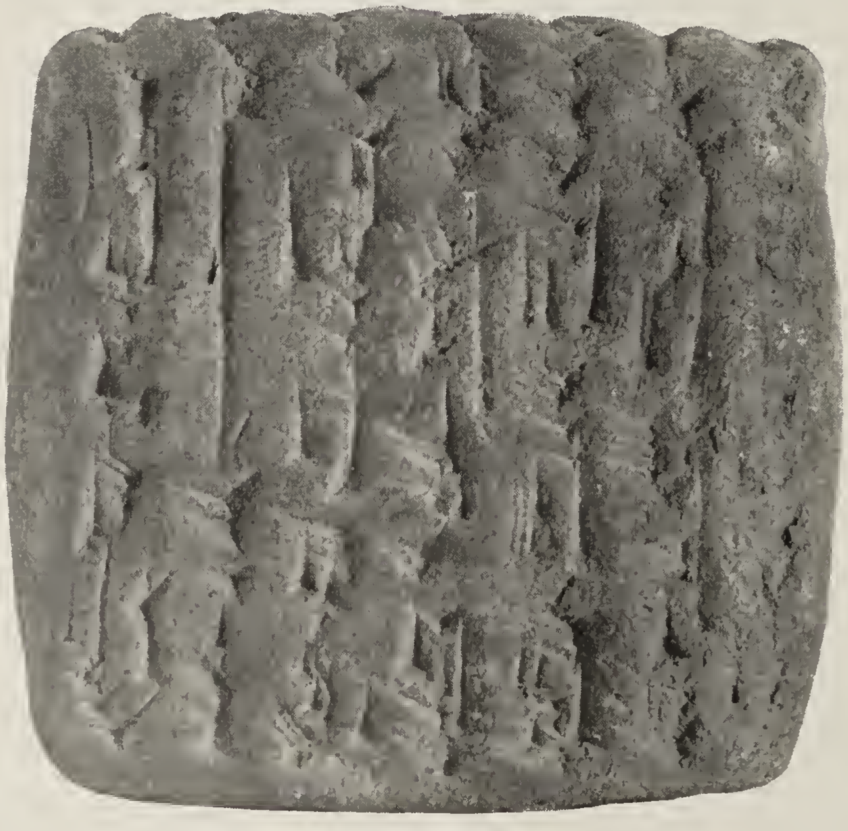
As the people grew in knowledge a more enduring brick than the sun-baked product was desired and, through accident or design, the practice of burning the brick in ovens became common. These oven-baked brick, as well as the sun-dried brick, constituted the great building material of all Chaldea and later of Babylonia for all subsequent time.

The Chaldeans developed the art of clayworking in a high degree. Not only were their homes and temples built of clay brick, and their streets paved with clay block covered with bitumen, but their cooking and eating utensils were of clay, and clay entered into the construction or design of everything that lent itself to this material, including statuary decorative art, and even the receptacles for burying the dead, which usually was an urn with a lid or cap that was sealed, or a brick arch vault.

Clay furnished the writing material, this being molded into slabs or tablets of convenient size and while still unbaked, cuneiform characters being made with a stylus. These tablets then were either sunbaked or cooked hard in an oven, to be uncovered thousands of years later as a record of their achievements, their rites and their customs.

So highly developed was clayworking, these Chaldeans made enameled brick which in color and texture rivals anything produced today. These enameled brick were used much as they are today—for decorative treatment and invariably were found lining the bathrooms of the homes of the wealthier classes.

As a further evidence of the high state of civilization existing, recent excavations have disclosed the fact that free libraries were in existence and that they were conducted much as they are today. Separate buildings were utilized for these and the "books"—



Tablet Found Near Gate of Istah by Wm. Myson and Presented to the Ancient Order of Chaldeans.

clay tablets—were folioed or paged and stacked in piles around the walls of the library, each one being listed or indexed according to subjects. A sign conspicuously displayed requested borrowers to leaves their names and addresses and stated the time limit which patrons had to observe in keeping the books. It is probable that the borrower had to make several trips to and from the library to get all of his "book" home, as many of the fragments found show that the "books" quite often were composed of half a hundred clay tablets.

Little ornate architecture was employed in the construction of the houses and temples. Poor and rich built alike—the wealthier building homes of greater area. Size or hugeness, therefore, signified superiority. It naturally followed that the temple—as religion was ever uppermost in the minds of the people, was especially large, great tracts of land being dedicated to these.

These "mountain houses", so-called because of their hugeness and similarity in size to the mountains far away, consisted of the temple proper which was the first erected. There were wide halls or rooms surrounding an inner court. Near this was built the ziggurat or tower (shown in one of the illustrations accompanying this article) and many smaller buildings, not unlike private dwellings. These latter served as residences for the priests, for the temple school, storehouses for the sacred oil and other articles pertaining to worship.

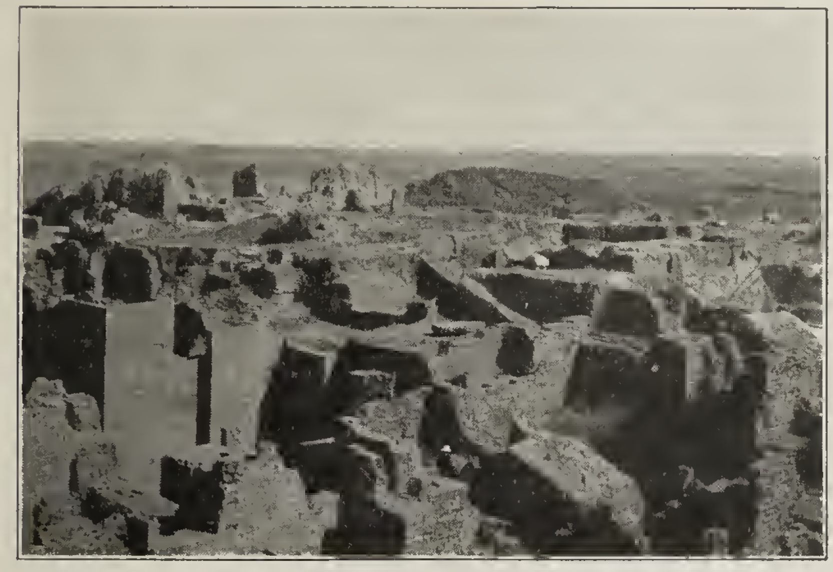


Fig. 4.

Fig. 5.

Within this large enclosure other walls surrounded buildings of special sanctity and importance. Within the temple proper was an inner room where was kept the statue of the man-headed winged bull which played such an important part in the religious ceremonies.

The ziggurat or mountain house, for this alone was massive and high, was a tower of burned clay, sometimes five or seven stories high, and was symbolic of the mountain form which the entire earth was supposed to assume. The remains of one of these ziggurats was discovered by Dr. Peters and his explorers at Nippur, and is supposed to have been erected as early as 2700 B. C. or even before. The ruins of this temple are shown in the pictures taken by Mr. Mellor, which furnish most of the illustrations used in this article.

It was the ambition of the kings that erected these buildings that the inner walls should "shine like the sunlight," and to this end gold, silver and precious stones lent their gleams and glows to mural decorations.

By examination of the illustration that heads this article, which is of one of these temples, it will be observed that figures adorn the walls. These figures were molded on the brick and not attached afterwards. Usually they represent animals, the man-headed winged-bulls and lions being more frequently used.

Next in importance to the temples were the royal palaces. Here again, a large inner court was surrounded by halls and rooms. The palace court was paved with brick—quite often enameled brick, and decorated. The inner walls were where the artist expended most of his skill and the colored brick and their borders are not to be excelled today. Quite often the floors were of clay tiles and these followed ingenious patterns, much as they do today. Again, brick or clay tablets were employed, these being covered with inscriptions deeply cut. Molten metal was poured into these incisions, giving the floors a curious and intricate design.

The monotony of the inner walls—where brick bands were not employed, was relieved by alabaster reaching around the halls from twelve to fifteen feet above the floors and held in place by strong iron clamps. On this soft, yielding substance were portrayed scenes in the life and exploits of the King. These were executed in bas-relief after the slabs were in place.

Bas-relief seemed to be the favorite expression of the sculptors as only one statue—that of a lion—has been discovered by any of the modern explorers. A picture of this single statue is shown in one of the illustrations with this article.

Above these elaborate slabs a frieze, perhaps three feet in width, extended. This was made of clay tile painted in delicate colors and laid in such a way as to form a picture or design. We miss the gaudy designs and colors so popular later in Egypt in these friezes. The Chaldean artist sought to please by the elegance of his forms and the harmony of his hues—not to startle by a display of bright and strongly contrasted colors.

Guarding the portals of the palaces stood the winged bulls and lions, usually in pairs. They were thought to ward off demons and to inspire awe in those who beheld them. The Chaldeans sought to embody their conception of wisdom, power and ubiquity of a Supreme Being in these images and, unaided by the light of a revealed religion, they could find no better type of intellect and knowledge than the head of a man, and we see the head of these images so made. Strength, to them, was personified in the bull or lion and the body was so made. Rapidity of motion was found in the bird and so the image bore wings.

These human-headed, winged bulls and lions, therefore, were not idle creations—the offsprings of mere fancy—for their meaning was written upon them.

There were several trades among the Chaldeans, but the brickmaker stood at the head of the list. There were carpenters, smiths, metal workers, weavers, leather workers, dyers, vintners and the potters, in addition to the brickmaker. The carpenter not only raised the beams and scaffolding of houses, but made all the furniture. The brickmaker made tablets for inscriptions, as well as brick for construction work.

The brickyards were always on lowlands, near the river, where the reeds, so useful in brickmaking, were abundant. Building brick were made in different sizes—some nearly a foot square by 2½ inches thick. Others were about 15x15x3 inches. Chopped reeds frequently were mixed in the brick.

In a secluded corner of the brickyard the fine tablets for literary purposes were produced, dishes and vases of pottery were molded and the enameled brick and fancy tile made.

The porcelain maker and enameller had a distinctive art and the walls of the palaces and temples of Babylonia and Assyria uncovered in recent years are adorned with glazed and enameled tile on which figures and other designs were drawn in brilliant colors. They were then covered with a metallic glaze and fired.

Chaldea seems to have been the original home of the enameled tile and the manufacture of porcelain. It was a land of clay and practically no stone existed and, while it thus became necessary to ornament the plain mud wall of the house, the clay brick itself, when painted and protected by a glaze, was made into the very best and most enduring of ornaments as is attested by their survival of the centuries and it comes to us today—thousands of years later, as a memorial of their makers' craftmanship.

Fig. 6.

The enameled brick of Chaldea and Babylonia are among the most beautiful relics of that ancient civilization and those now in the Museum of the Louvre and the British Museum are unsurpassed by the most elaborate productions of modern skill.

As a proof that there is "nothing new under the sun," the brickmakers had organizations in Chaldea, which corresponded to the guilds of later years. These organizations or trade unions among the brickmakers and masons, are believed to be the origin of the guilds that later became very powerful and which played such a prominent part in the construction, many years later, of Solomon's temple, and from which modern Free Masonry is supposed to have started.

Those who learned the trade, or art as it was, of brick or tile making had to serve an apprenticeship a certain time and to prove they had learned their work thoroughly, undergo certain tests before the chief craftsmen.

Chaldeans were a very studious race and we of today are indebted to them for much that we have—particularly in astronomy. In geometry they made about the same progress the Egyptians did—in arithmetic more, their notation combining the decimal and duodecimal systems.

Scientific medicine was hindered by the belief in charms and amulets, and even astronomy was studied as a means of fortune-telling by the stars. The level plains and clear skies, however, offered excellent opportunity for the study of the constellations and some important progress was made. As we get from the Egyptians our year and months, so from the Chaldeans we get the week with its "day of rest for the heart," as they called the seventh day. We also get from them the division of day and night into twelve hours each, with the subdivision into minutes. They invented the water clock and sun dial and they foretold eclipses, made star maps, and worked out on the heavens the yearly path of the sun. The zodiacal signs used in our present-day almanacs commemorate these early astronomers. Every great city had its lofty observatory and its royal astronomer and, in Babylon, in 331 B. C., Alexander the Great found a continuous series of observations running back nineteen hundred and three years, very similarly to those kept today by our modern astronomers.

To a degree peculiarly absent among the ancients the Chaldeans made practical use of their science. They understood the lever and pulley and used the arch in vaulted brick drains and aqueducts. They invented the potter's wheel, about the same as is still in use today, and an excellent system of weights and measures. Their treatises on agriculture passed on their knowledge on that subject to the later Greeks and Arabs. They had surpassing skill in cutting gems, in enameling and inlaying and their looms produced the finest of muslins and of fleecy woolens to which the skillful dyer gave the most brilliant of colors. In many of these industries little progress has been made since, although thousands of years intervene.

The Chaldean produced quite an extensive literature. Their writings treated of religions, mathematics, astronomy, astrology and geology, while some attempt was made to explain animal and plant life. History was limited almost entirely to royal inscriptions and lists of kings. Diplomatic affairs, correspondence with foreign provinces, official letters, tribute lists and royal decrees made up a large part of the surviving tablets.

Reference already has been made of the libraries that existed. These clustered around the temples as a rule. At Erech were early collected writings which were concerned with the religion of the ancient Chaldeans, together with the myths and legends of the country. So many tablets were preserved in this temple that Erech was called the "City of Books." A library rich in mathematical lore grew up at Larsa, another at Nippur and still another at Cathah. Smaller libraries were attached to all the temples.

The libraries, of course, as have been explained, were collections of clay tablets. The size of the tablet varied greatly. The largest were flat and about 9x6½ inches. Smaller ones were slightly convex, while tiny ones, not more than one inch long, containing but a line or two, have been found. Sometimes the lettering is so fine it could have been done only by the aid of a lens and cannot be read without one.

Through the kindness of Mr. Myson, two of these smaller sized tablets are in the possession of the Supreme Temple of the Ancient Order of Chaldeans. Mr. Myson picked these up in the ruins of Babylon. In writing about them he said: "The dark colored tablet was from Nebuchadnazzar's palace and the light one found in an ordinary dwelling house close by the gates of Istah. The dates of the writings probably would be about 626 B. C., as they were both in the portions of the city built by Nabopohassas, Nebuchadnazzar's father—the first Chaldean king of Babylonia who built the new city on the ruins of the old city, which was destroyed about 689 B. C." These tablets are about two inches square and half an inch thick. One is very dark in color and probably had a mixture of bitumen in it before burning. The other is light in color—a yellow. Both are hard burned and would compare favorably with the vitrified brick of today. Both tablets have inscriptions on them which Mr. Myson neglected to have translated during a recent visit in London. It is the purpose, however, of the organization to have translations made at some early date and to preserve these, together with the brick, in the archives of the Ancient Order of Chaldeans. Both tablets are convex in form and probably contain some brief notes or correspondence.

The tablets found in the libraries usually were much larger than the one found by Mr. Myson. Occasionally one of these constituted a book, but more often several tablets were required to contain the entire writing. Thus the story of the deluge which is told much as the Bible account written many thousand years later, is the eleventh tablet, or chapter, of a series numbering twelve in all. Seventy tablets composed a single work on astronomy, while three books comprising the early religious texts, covered 200 tablets.

Each tablet was carefully numbered and known by the first line of the book. For example, one work treated on the creation and began: "Formerly that which is above was not yet called the heaven." The first tablet, therefore, was entitled, "Formerly that which is above, No. 1;" the second, "Formerly that which is above, No. 2," and so on through the entire series.

Space is too limited in this article to dwell at length on any of the customs or ceremonies of the Chaldeans, but in some subsequent issues it is proposed to present a series of two or three articles which will be more comprehensive and in which some of the translations made on the tablets will be given verbatim and more particularly those pertaining to the civil, religious and social life of the people.

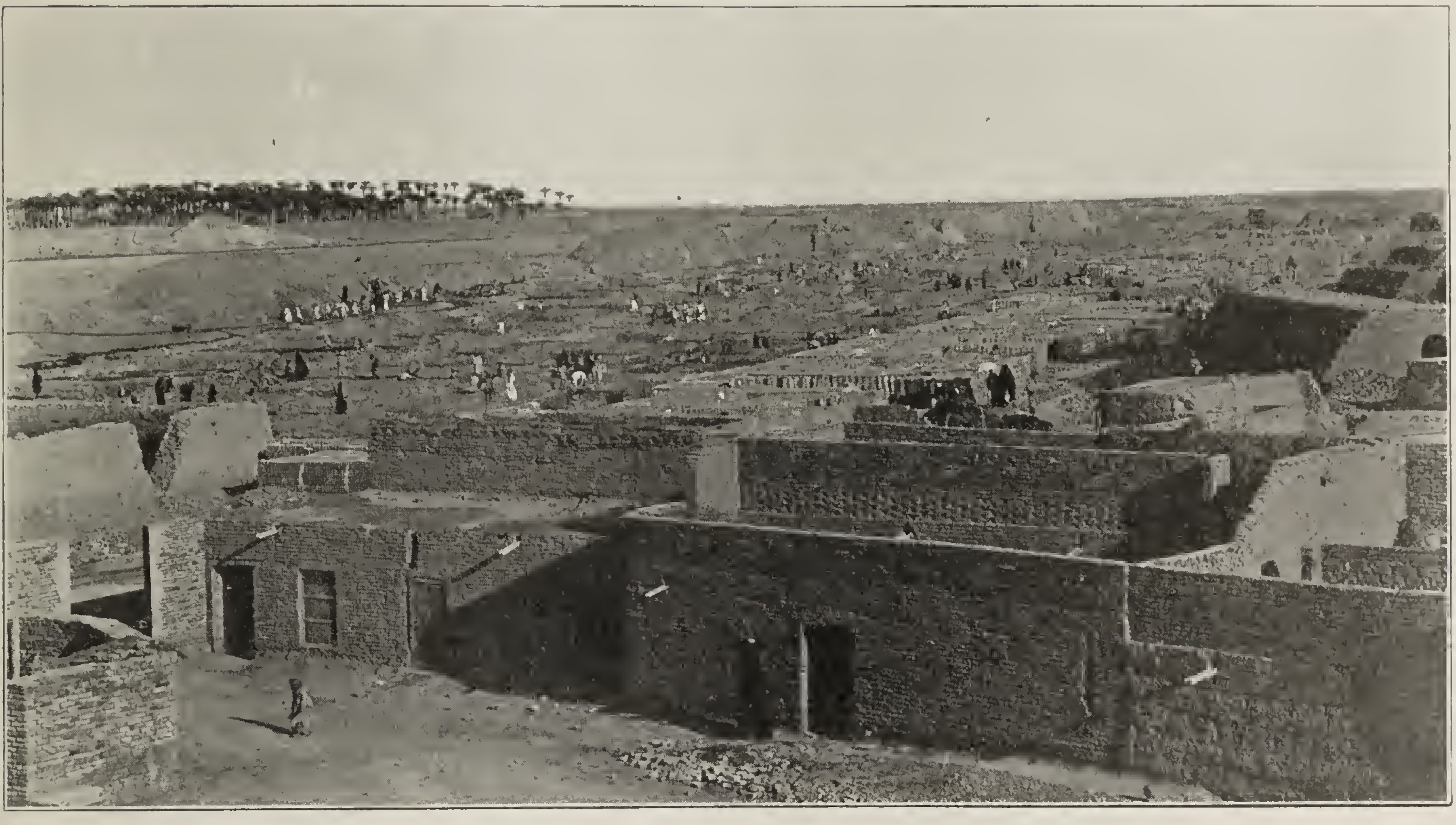


Fig. 7—A birdseye view of the clay plant operated by Wm. Myson on the same ground when the ancient Chaldeans made burned clay ware thousands of years before Christ.

Exposes Wayne County Concrete Roads

The Gary (Ind.) "Times" of Jan. 22, 1914, prints an interesting interview with a local road builder who inspected the Wayne County concrete roads recently and found them rather an expensive luxury. The "Times" says:

"The investigation as to the amount of money spent in making and repairing Indiana roads may be well considered by the Lake County commissioners. A road builder named Foster looked over the Wayne County roads recently and declared that he does not believe the county is receiving its money's worth for the sums spent on roads, which have cost about $11,000 a mile. He is certain that the action of the commissioners in letting contracts for concrete roads will be the cause of regret later.

"'I went over the roads of Michigan two weeks after the commissioners from here and the county attorneys and other officials were taken over them,' said Mr. Foster. 'I found hundreds and hundreds of patches which were overlooked by the others. They were cleverly concealed for the occasion.

"'The abrasions in the road had been filled with hot asphalt and had been covered over with sand. I took my pocket knife and with little pressure I stuck it into the road bed the full length of the blade. This was done on some of the model concrete roads of Wayne County, Michigan.

"'These roads are built at a cost of $16,000 a mile for an eighteen foot concrete roadway. The roads here cost more because they are wider in places. When those concrete roads are worn out, everything put in them is lost. It costs as much to break up and haul away the pieces as it does to put it down in the first place.'

"Mr. Foster says he was a strong advocate of concrete roads until he made the investigation of the conditions around Detroit."

Plan to Take the Chaldean Special to New Orleans

If you contemplate going to New Orleans to attend the National Brick Manufacturers' Association Convention and kindred meetings, March 2-7, buy your ticket by way of the Chaldean De Luxe Special train and get the advantage of helping boost burned clay through the South—of being in a big party of clayworkers—of having the free entertainment provided along the route.

It Leaves Chicago Saturday, February 29
It Reaches New Orleans Monday, March 2

The Chaldean De Luxe Special departs from the Dearborn Street Station, Chicago, Saturday night at 10:05 o'clock, at which time special Pullman sleepers from Canada, from the East as far as Detroit, and from Minneapolis, Des Moines and other points in the Northwest, will be attached. The Special will arrive in New Orleans Monday afternoon at 4:10 o'clock, March 2.

The Route To New Orleans—

The route taken from Chicago is over the Monon road to Cincinnati, stopping at Indianapolis to take on clayworkers in that vicinity. A special sleeper will be in waiting at Indianapolis if the party is large enough to justify one.

From Cincinnati to New Orleans the Louisville & Nashville road will be used, the train stopping at Louisville, Mammoth Cave, Nashville, Decatur, Ala., Birmingham, Ala., and other points in the South—a full list, with time schedule appearing on the next page.

The Route From New Orleans—

The return trip for all those taking the train at Chicago will be over the L. & N. and the C. & E. I. R. R.—two routes being provided—by way of Evansville, Ind., to Chicago, and by way of St. Louis to Chicago. No special train will be run on the return so that the tourists may take their time in departing.

All tickets, however, sold on the Chaldean train will be round-trip tickets and routed for the return over either of the two above routes.

Those who take the Special at other points will have their return trips routed over the lines that best suit their convenience.

Trip Includes Half a Day's Visit To the World-Famed Mammoth Cave

Special arrangements have been made to give those who desire to do so, the opportunity of spending a few hours at Mammoth Cave in Kentucky. The Special will reach Glasgow Junction, Ky., at 2:15 P. M., Sunday. A second special (on the Mammoth Cave Narrow Gauge Road) will await the tourists there and take them to the Cave, the big Chaldean Special awaiting their return. The Chaldean Special will leave Glasgow Junction at 7 p. m. and continue its trip southward.

No Additional Fare Will Be Charged

Whatever your excursion rate from your home city is to New Orleans will be the fare on the Chaldean De Luxe Special. If your ticket agent cannot supply you with the necessary information write to W. P. Varney, 301 Chamber of Commerce Bldg., Chicago, and he will answer all questions.

No Matter Where You Live, Buy Your Ticket By Way of "Chaldean Special"

Any clayworker who lives within convenient range of the Chaldean De Luxe Special route, can take this train without additional cost.

Those living north of the Ohio river or west of the Mississippi river can take the train at either Indianapolis, Cincinnati, Louisville or Nashville. Those living closer to Chicago or north, northwest or northeast can take it at Chicago.

No additional fare will be charged—if you ask your agent to route you one of these ways.

Some Facts About the Chaldean Special

The Chaldean De Luxe Special will be a twelve-section Pullman train carrying ample accommodations for all. Extra finely equipped observation and library cars will be at the service of the tourists with all the conveniences afforded on the best appointed trains.

There will be buffet cars—stocked by the Chaldeans, all refreshments, etc., being free to the tourists.

There will be dining cars with the best food and service obtainable.

There will be special sleepers for clayworkers who wish to take their wives or families.

What Your Fare Will Be

The cost of the trip will be the same as it would be if you took a regular train to New Orleans. It will include:

Excursion Round-Trip Ticket.
Pullman Fare.
And whatever your meals on the train may be.

Your own ticket agent will give you these figures or you can obtain same by applying to the chairman of the Chaldean Transportation Committee, W. P. Varney, 301 Chamber of Commerce Bldg., Chicago.

As to Service Enroute

Every provision for the comfort, entertainment and pleasure of the Chaldeans and their friends will be made. Aside from the Chaldean special Committee on Entertainment and the Special Committee on entertainment from the Chicago Clay Club, P. W. Morrow, Northwestern Passenger Agent of the L. & N. R. R., will personally conduct the tour and see that time schedules are maintained and that everything is done for your comfort.

Here is the Time Table of the Special

The running time and points at which the train will stop will be as follows:

February 28.		
Lv	Chicago (Monon)	10:05 P.M.
March 1.		
Ar	Indianapolis	3:20 A.M.
Ar	Cincinnati	7:15 A.M.
Lv	Cincinnati (L&N)	8:15 A.M.
Ar	Louisville	11:35 A.M.
Lv	Louisville	11:45 A.M.
Ar	Glasgow Jct.	2:15 P.M.
Lv	Glasgow (MCRR)	2:20 P.M.
Ar	M. Cave	2:55 P.M.
Lv	M. Cave	6:15 P.M.
Ar	Glasgow Jct.	6:50 P.M.
Lv	Glasgow (L&N)	7:00 P.M.
Ar	Nashville	9:30 P.M.
Lv	Nashville	9:40 P.M.
March 2.		
Ar	Decatur	1:10 A.M.
Lv	Decatur	1:20 A.M.
Ar	Birmingham	4:15 A.M.
Lv	Birmingham	4:20 A.M.
Ar	Montgomery	5:45 A.M.
Lv	Montgomery	6:55 A.M.
Ar	Georgiana	8:30 A.M.
Ar	Flomaton	10:00 A.M.
Ar	Mobile	11:50 A.M.
Lv	Mobile	12:00 Noon
Ar	New Orleans	4:10 P.M.

If You Are in Doubt as to Trains or Tickets or Want Any Information—

The Chaldeans want to do everything to afford you a safe, pleasant and enjoyable trip to New Orleans. Its Committee on Transportation and Information, of which W. P. Varney, Venerable Nebo of Chicago Temple No. 1, is chairman, is in a position to answer all questions about the trains, schedules, train connections, hotels, etc., you may wish to make.

If you have difficulty in getting the required information from your local ticket agent, write to Mr. Varney.

If you want him to do so, he will tell you what the round trip excursion rate from your city is, what road you must take and at what time your train departs to enable you to get aboard the Chaldean Special.

If you want hotel reservation at New Orleans or information and costs of any special side trips to Panama, Cuba, or elsewhere, write Mr. Varney. Address all inquiries thus:

W. P. VARNEY
301 Chamber of Commerce
CHICAGO

Canal Street, New Orleans' Principal Shopping Center.

N. B. M. A. to Draw Big Attendance

PROBABLY one of the best attended sessions of the National Brick Manufacturers' Association will be the 28th Annual Convention of this organization at New Orleans March 2-7. The location—the metropolis of the Mississippi Delta—with its warm Summer sun and its quaint buildings and places of interest, will have much to do with this, as who has not dreamed of some day making just such a trip during the carnival season.

New Orleans will be in gala day attire—as the Mardi Gras festivities will come to a close as the clayworkers enter the city, and the spirit of jollity will prevail.

While no announcement has been made of the program for the Convention it is known that it will be unusually interesting. So many, and such radical changes are taking place in the methods and processes that have been used in brick-making, so many experiments being tried that are destined to revolutionize the art or craft of turning clay into brick, that the information given at these annual sessions of the brickmakers' congress is of immense value.

These papers, as they are read, give the latest developments in the business. The discussions that follow—public discussions that are open to everyone—bring out points that lead, frequently, to little private talks that make it possible for the clayworker to adopt some new wrinkle that will save him many thousands of dollars.

New Orleans, through F. Salmen of the Salmen Brick & Lumber Co., made a most strenuous effort to bring the convention to the Crescent City. Having succeeded, it is but natural to believe that New Orleans (through Mr. Salmen and his business associates) will do everything possible to make the N. B. M. A. and every individual member of that body, feel that New Orleans is the only logical place in which to hold a brick convention.

A meeting of the directors of the National Paving Brick Manufacturers' Association will be held Monday, March 2nd, at the convention headquarters. Members of the N. P. B. M. A. are urged to attend this session and the one that will, in all probability, be held on the day following.

An adjourned executive session of the American Face Brick Association will be held and due notice will be given of the date and time. The meeting will be at the Hotel Grunewald, which will be convention headquarters. At this meeting, representatives of the Face Brick Dealers' Association will also be present—or it is possible that separate executive sessions of the two bodies will be held, and be followed by a joint session.

The Building Brick Association of America will also hold an executive session, the date of which will be announced later, and plans for reorganization may be considered.

The National Clay Machinery Manufacturers' Association will hold meetings also during the week.

Among the other affiliated associations that will be in attendance and who may hold formal or informal meetings, according to plans that are now being made, are the Eastern Paving Brick Manufacturers' Association, the Western Paving Brick Manufacturers' Association, the American Ceramic Society, the Arkansas and Northern Louisiana Brick Manufacturers' Association, the Canadian Clay Manufacturers' Association, the International Clay Products Bureau, the Iowa Clay Manufacturers' Association, the Illinois Clay Manufacturers' Association, the Northwestern Clay Association and many others.

The Ancient Order of Chaldeans will hold its annual meeting and will exemplify the work for the benefit of clayworkers who were not fortunate enough to learn the mystic symbols and participate in the initiation that was so important a part of the Chicago N. B. M. A. Convention of 1913. Elaborate preparations are being made to make the secret ceremonies duly impressive, recalling the ancient magnificence of Chaldea and Babylon and the court of Nebuchadnezzar. On another page of this journal will be found a description of the trip that will prove interesting reading for those who intend making this important pilgrimage.

Three States Declare for Open Prices

THREE state associations within the past two weeks have declared themselves for the open price policy—the Northwestern Clay Manufacturers' Association, comprising Minnesota, Western Wisconsin and North Dakota; the Illinois Clay Manufacturers' Association and the Wisconsin Clay Manufacturers' Association. With the Iowa Clay Manufacturers' Association, which declared itself for the one-price, open policy at its convention at Des Moines in December, there are now four state organizations that are planning to operate under the system.

With the exception of Ohio, which has not held its 1914 convention, there are no other state organizations which are active. The Arkansas association of clayworkers which is scheduled to be organized Feb. 16 and 17, is said to be planning to take up the open price policy and may include it in the constitution that is now in preparation.

The Society of Vitrified Clay Manufacturers, which is composed of sewer pipe manufacturers operating west of Indiana, has been operating under the system for several months, or since its organization last Spring.

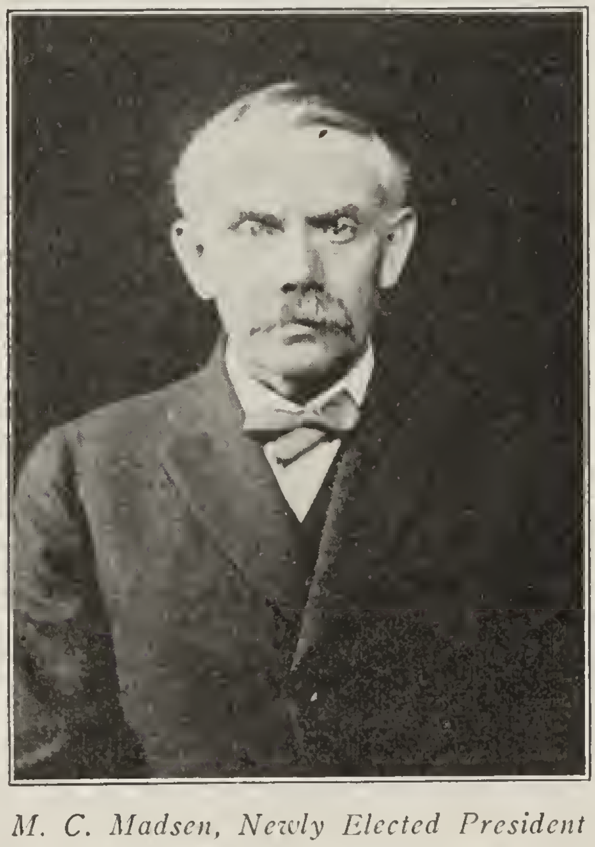
Several of the national organizations are said to be making preparations for adopting the system, but no definite announcements have been made.

The three conventions held within the last two weeks were well attended and considerable interest was manifested by the attending delegates.

One of the most encouraging signs among these bodies was the decision to reorganize along more progressive lines The Northwestern and the Illinois associations, particularly, have taken decisive steps, following the Iowa plan in dividing the territories into several units or districts. This gives each district a chance to work out its own problems without the necessity of waiting a year to do it.

Northwestern Adopts New Methods

DECLARING itself as favoring the open price policy the Northwestern Clay Manufacturers' Association appointed a committee on reorganization at its annual convention in Minneapolis, Minn., Jan. 20 and 21 and will seek to adopt the standard at an adjourned session of the organization, which will be held before Spring.



M. C. Madsen, Newly Elected President of the Northwestern Clay Manufacturers' Association.

The convention was one of the best ever held by the Association and many practical questions were discussed and decisive action taken on them.

One of the most pleasing features of the two days' session was the attendance of a special delegate from the Minneapolis Bricklayers' Union. George Prescott, as a personal representative of the president of the union, offered the good offices of his organization and declared that it stood ready to co-operate in any manner with the clayworkers.

The offer of the bricklayers was accepted and in the new constitution which is to be adopted, provisions will be made to give a seat to a delegate in future conventions, this delegate to have full voting power. In this connection it also was decided to invite the society of architects and the contractors to send delegates to all conventions that are held in the future and participate in all deliberations.

The action of the convention in declaring itself on the open price policy followed an address on the subject by Iverson C. Wells, managing editor of "Brick and Clay Record." Mr. Wells explained briefly what the new competition meant to the clayworker and gave a short outline of the system that was employed in other industries.

The address drew forth considerable discussion and before the convention adjourned resulted in the appointment of a special committee on reorganization. This committee was composed of Frank Nixon, of Paine & Nixon, Duluth, chairman; M. C. Madsen, Hutchinson; George Prescott, Minneman; M. C. Madsen, Hutchinson; George Prescott, Minneapolis; F. B. Martin, Minneapolis, with Mr. Wells, acting in an advisory capacity.

This committee was empowered to make a thorough investigation into the system and report at an adjourned session which Secretary Martin is to call later.

Another important move was the action of the association on publicity matters. A special committee was appointed and arrangements are to be made for the publication of a monthly journal which will print illustrated articles showing the proper use of clay products and their advantages as a building and constructive material. This publication is to be distributed among prospective purchasers of building and construction material with the idea of educating them to burned clay.

The association indorsed the idea, which is fathered by C. F. Ireland, of Minneapolis, and agreed to pay for a certain quantity of subscriptions to make it possible.

Other plans for publicity were discussed by this same committee and will be whipped into some sort of shape at the adjourned session.

Several very interesting papers were read during the meeting. Prof. F. F. Grout of the ceramic department of the University of Minnesota, drew forth more discussion than any of these. His address was on the clays of Minnesota and he illustrated his remarks with maps and sketches.

M. C. Madsen, of Hutchinson, Minn., was elected president to succeed E. H. Cobb, who has headed the organization for several years. Mr. Cobb has made a most excellent executive, but will find a worthy successor in Mr. Madsen. B. Frank Pay, of Fowler & Pay, Mankato, Minn., was chosen as vice-president and F. B. Martin of the Twin City Brick Co., Minneapolis, was elected secretary-treasurer to succeed Axel Anderson, whose continued ill health made it impossible for him to take an active part in the work proposed. The executive committee was composed of E. H. Cobb, Frank Nixon and A. C. Ochs.

The annual banquet was held Tuesday evening at the West Hotel, where all the sessions of the association were held. George M. Gillette, of the Minneapolis Steel & Machinery Co., and president of the Minnesota Manufacturers' Association, was the guest of the evening and delivered the only address. Mr. Gillette talked at length on the compensation act of Minnesota and the insurance liability law. He also took occasion to indorse Iverson C. Wells' address of the afternoon on the open price policy and told the clayworkers he knew it was a good thing because he belonged to two organizations that had been operating under it for some time.

One of the most valuable features about the convention was the opening of the "Question Box" on the last day of the convention. Members had been given the opportunity earlier in the two-days' session to ask any question that appealed to them. These questions were written on a large blackboard and clayworkers qualified to answer them were called upon for a solution. Invariably these solutions were followed by a general discussion which brought forth many interesting angles.

The convention was declared one of the best ever held by the Northwestern Clay Manufacturers' Association and gave everyone present an inspiration to take hold of the new work, as outlined, and to each one do his part to bring it to a successful issue during the coming year.

Illinois Decides to Reorganize

COMPLETE reorganization of the Illinois Clay Manufacturers' Association was decided upon at the annual convention held at Champaign, Jan. 22-24, and a special committee was appointed to report a plan at an adjourned session which will be held in Chicago, March 18, at the LaSalle Hotel.

Two of the features of the reorganization, as proposed, will be the re-districting of the state into four or five units, each unit to have an organization which will meet regularly every month or three months, as may be determined, and the adoption of the open price policy.

The unit system which was established in a different manner last year, is really a part of the open price policy which is proposed, and followed an address on this subject by Iverson C. Wells, editor of "Brick and Clay Record."

The greater part of Friday and Saturday's sessions were devoted to the discussion of the open price standard and the reorganization plan and before adjournment a special committee, composed of D. C. Haeger, J. L. Buckley and Mr. Wells, was appointed to make an investigation and report a complete plan at the special meeting to be held in Chicago.

D. C. Haeger, Newly Elected President of the Illinois Clay Manufacturers' Association.

In opening the convention President Mamer delivered an address in which he urged a decided movement, both from the standpoint of individuals and as an association, for greater publicity. He told of the great opportunities of the clay worker for rebuilding the Nation of fire-proof materials and said that every member of the association should return to his home with the determination of taking up the problem and working out some sort of practical solution.

During the convention the closing sessions of the short course school at the ceramic department of the University of Illinois were being held and the delegates were invited to visit the school and see the work that was being accomplished. Some twenty-five or more clayworkers from Illinois and many distant states were taking advantage of this course, one student—B. Mifflin Hood, of Georgia—traveling several hundred miles to do so.

D. C. Haeger was elected as president to succeed Mr. Mamer and J. C. Meyers of the Alton Brick Co., Alton, Ill., was chosen vice-president. A. C. Huckins, of Champaign, was continued in the office of secretary as was George Walter of Chatsworth as treasurer..

The committees selected follow:

Reorganization—D. C. Haeger, Aurora; J. L. Buckley, Aledo, Ill.; Iverson C. Wells, Chicago.

Legislative—J. W. Stipe, Champaign; Wm. Hammerschmidt, Lombard; Frank Butterworth, Danville.

Technical—R. T. Stull, Champaign; Douglas Stevens, Danville; T. W. DeWolff, Champaign.

Resolutions—D. C. Haeger, Aurora; Iverson C. Wells, Chicago, and L. H. Lambert, Beaverville.

Cost Accounting—Douglas Stevens, D. C. Haeger and Frank Butterworth

The annual banquet of the association was held Friday evening at the Beardsley Hotel, where all the sessions of the convention were held. Several members of the faculty of the Illinois University were guests and participated in the evening's program. There were quite a number of speakers and the banquet was declared one of the best ever given by the association.

The convention was one of the most enthusiastic ever held by the Association and President Haeger is taking hold of the executive reins with the determination to repeat the record attendance he had three years ago when he was president.

Mr. Haeger is president and general manager of the Haeger Brick & Tile Co. of Aurora, which operates three large plants in northern Illinois. He is one of the most progressive clayworkers in the country and his plants are models.

Canadians to Join Chaldeans

TWO special Pullman sleepers will bring the members of the Canadian National Clay Manufacturers' Association to Chicago Feb. 27, where they will be attached to the Chaldean De Luxe Special Train to New Orleans. This decision was made at the national convention held the past week in Toronto and followed an address by C. L. Rorick, business manager of "Brick and Clay Record."

Mr. Rorick told of the plans of the Chaldeans and invited the Canadians to partake of the hospitality of the Order on its tour through the south to the New Orleans conventions.

The convention was one of the best ever held by that organization. The sessions were in the King Edward Hotel Jan. 27-30. The following speakers addressed the delegates:

Herbert N. Casson, vice-president of H. K. McCann, New York.

M. E. Gregory, president of the Brick, Terra Cotta and Tile Co., Corning, New York, on "Commercial Side of the Clay Business."

Joseph Keele, Dominion Geological Survey.

Prof. Edward Orton, Jr., Ohio State University, Columbus, Ohio, on "Ceramic Course."

Prof. Day, Ontario Agriculture College, Guelph.

Prof. M. B. Baker, of Queen's University, Kingston.

A. F. Greaves-Walker, ceramic engineer with the Sun Brick Co., Toronto, on "Brick Yard Kinks."

Miller Gibson, ceramic engineer, National Fireproofing Co., on "Different Types of Fireproofing, Their Manufacture and Burning."

John F. Wilde, ceramic engineer with E. H. Crandell Pressed Brick Co., Calgary, Alta., on "Types and Construction of Kiln Furnaces."

Dr. McKay, principal of Toronto Technical School.

D. O. McKinnon, on "History of Our Association."

A. L. McCredie, on "Advertising Clay Products."

John Millar, Clayburn, B. C.

Charles A. Millar, the president of the Association, John R. Walsh, the secretary and treasurer and the members of the executive committee were re-elected because of their part in making possible the establishment of a ceramic department in the University of Toronto.

A fuller report of this convention will appear in the Feb 16 issue of this journal, which will be devoted to convention reports and particularly to the N. B. M. A.

Wisconsin Discusses Many Problems

WISCONSIN CLAY MANUFACTURERS' ASSOCIATION, at its annual session in Milwaukee, Jan. 29 and 30, discussed chiefly problems of manufacture, several most excellent addresses being made by Prof. Edward Orton, Jr., of the Ohio State University; Prof. M. O. Withey of the Wisconsin State University, and Prof. Samuel Weidman of the Wisconsin State Geological Survey. Other problems considered were the Wisconsin lien law, the open price standard, industrial education in bricklaying and publicity plans for boosting clay products.

No definite action was taken on either of the three subjects last mentioned, by the members of the convention, although the executive committee was instructed by Acting President Hilker to make the necessary investigations

The open price standard was explained to the members by Iverson C. Wells, managing editor of "Brick and Clay Record." C. L. Smith, chairman of a special committee from the Iowa Clay Manufacturers' Association, which has in its hands the reorganization plans of that body along the open price standard lines, was a visitor and told what his association planned to undertake and what his committee had accomplished so far in its investigation.

The suggestion for the Wisconsin clayworkers to adopt the "new competition" was left in the hands of the executive committee.

Professor Orton delivered two talks before the convention, one on the morning of the last day of the meeting and the other on the afternoon of the same day. The first lecture was on "The Testing of Clays to Determine What Their Uses Are." He described a very simple test for determining whether clays were worth while experimenting with and urged that this test should be made before any attempt is made to promote a new plant or clay pit.

Professor Orton said further that every clayworker should make these tests himself, as then he would learn something about his clay that would be an asset to him in the future.

In the afternoon lecture Professor Orton talked on "The Reaction Taking Place in the Burning of Clay Wares," and it proved one of the most valuable practical contributions ever made to a convention.

This journal proposes to print these papers in some subsequent issue.

Other subjects treated were: "Recent Changes in the Cost of Brick Manufacture," by A. W. Hilker, Racine; "The Wisconsin Lien Law," by F. Vogt, Milwaukee; "My Experience with Brick Kilns and Fuel," by J. D. Pratt, Menominee; "The Testing of Drain Tile and Brick," by Prof M. O. Withey; "Advertising and Selling of Brick," by T. F. Dever, Milwaukee.

President John Ringle was called to Minnesota the first day of the session by the death of a brother. Vice-President Hilker took the chair and wielded the gavel the rest of the session.

The 1913 officers were honored by re-election at the suggestion of the nominating committee, these officers being: John Ringle, Wausau, president; A. H. Hilker, Racine, vice-president; Samuel Weidman, Madison, secretary and Oscar Zimbal, Sheboygan, treasurer.

Western Ontario Meets Feb. 4-5.

The Western Ontario Clay Workers' Association meets Feb. 4 and 5 at Chatham, Ont. The meetings will be held in the Board of Trade Chambers and the headquarters at the Rankin Hotel. The program is as follows:

W. McCredie, "Technical Education, Its Progress and Probable Effect on Our Trade."

Jno. Wardle, "Handling Clay From Bank to Machine."

Jno. T. Miner, "A Paper on Burning Clay Wares."

A. W. Hill, "Machinery, Its Installation and Maintenance."

Prof. Creelman, O. A. C., "Tile Drainage as it Affects the Agriculturalist."

Ben. Broadwell, "Marketing Brick."

F. Hill, "Drying Clay Goods by Artificial Means."

G. W. Moody, "Tile Publicity."

Eastern Paving Brick Manufacturers Association Meets Feb. 5

The Annual Convention of the Eastern Paving Brick Manufacturers' Association will be held in Bradford, Pa., Thursday, Feb. 5, and the two days next succeeding. The headquarters will be in the Hotel Holley, Bradford's most pretentious hostelry, and will be open for registration at noon on the 5th. A registration fee of $2.50 will be required, and this will include a ticket to the banquet which will be held Friday evening, the 6th.

All sessions of the convention will be held in the spacious auditorium of the hotel, with the exception of the Good Roads Meeting on Thursday evening, which will be held in the State Armory at Bradford.

Every effort will be made to make this convention pleasurable and profitable to all manufacturers of burned clay. The local committee on entertainment has done everything in its power to make the convention memorable, and it remains to the membership at large and clayworkers who can make the trip, to reward the efforts of those who have the meetings in charge, by giving a good attendance.

The program follows:

Thursday, February 5.

2:00 P. M. Meeting of the Executive Committee for the purpose of appointing a committee on nominations, a committee on resolutions, and an auditing committee, and for the consideration of any other business that may properly come before the Executive Committee.

3:00 P. M. The Opening of the Convention Proper;
Invocation, Rev. Russell D. Showers, of Bradford, Pa.
Address of Welcome, Capt. F. P. Shoonmaker, president Board of Trade of Bradford, Pa.
Response, G. H. Francis, Greensburg, Pa.
President's Annual Address, C. E. Foster, president Eastern Paving Brick Manufacturers' Association.
Report of the Secretary, C. A. Young, Pittsburgh, Pa.
Report of the Nominating Committee.
Election of Officers.
Announcements.
Address by the Hon. R. P. Hapgood, Bradford, Pa.
Address by E. J. Herrman, representing the Pennsylvania Good Roads Association.
Address by Will P. Blair, secretary National Paving Brick Manufacturers' Association.
Address by a representative of the National Highways Association.

Friday, February 6.

Cost Accounting, by G. W. Lenkerd, Indiana, Pa.
Methods of Handling Labor, by Frank Stowell, Olean, N. Y.
What the City Engineer Expects of the Paving Brick Manufacturer, by E. F. Bannon, Hornell, N. Y.
Announcements.
The Uniform Contract, by C. P. Mayer. Bridgeville, Pa.
Methods of Marketing Brick, by Charles Crook, Catskill, N. Y.
What Can the Association do for its Membership? by J. B. Hammond, Bolivar, Pa.
Methods of Testing and Inspecting Paving Brick—Existing Evils and their Remedy, by M. E. Gregory, Corning, N. Y.
Report of the Auditing Committee.
Report of the Committee on Resolutions.
Announcements.

Saturday, February 7.

9:00 A. M. Trip to various clay working plants in and near Bradford.

Secretary Young announces that any brickmaker having a resolution to bring before the convention, or having any paper or subject that he may desire to discuss, will be required to present the same, in writing, to the secretary, the executive committee or to the committee on resolutions in time for action to be taken upon the same by the executive committee prior to the session of the association at which this resolution, paper or subject is to be announced.

He also states that all of the sessions of the convention will be open to the public. Brick manufacturers, whether members of the association or not, are especially urged to attend the sessions, as the program has been arranged with a view of benefiting all manufacturers of clay products.

American Face Brick Association Rules

The American Face Brick Association has printed a set of rules defining the position of its membership, making them an adjunct to the constitution that was adopted at French Lick, Ind., in December. As these rules solve nearly all of the "problems of conduct" that confront a manufacturer of face building brick, they are here reprinted in full for the benefit of the craft:

1. That it is not the desire of this Association to require of its members any acts which will, in any way, infringe upon the laws of this country.
2. That this Association condemns, in no uncertain terms, the practice of accepting orders for larger quantities of face brick than can be delivered with reasonable assurance, and insists upon its members refraining therefrom.
3. That this Association condemns the practice of extravagant selling methods, which, in some instances, exceed 20 per cent of the usual agent's commission, and insists upon its members refraining therefrom.
4. That this Association condemns the practice of "knocking" competitor's materials or casting aspersions that may be detrimental to the general face brick business, and calls upon its members to insist that their employees and selling connections refrain therefrom.
5. That this Association condemns the practice of continued solicitation of a prospect after it becomes an order, and insists upon its members and their selling connections ceasing all selling effort as soon as an adoption by the owner is secured or an actual sale made—no adoption or sale to be considered as such unless formally expressed in writing.
6. That this Association condemns the practice of a manufacturer renewing his selling efforts after delivery has commenced on an operation where any difference of opinion has arisen, resulting in cessation of deliveries, unless by consent of the original manufacturer serving the said operation, and insists upon its members and selling connections carrying out the spirit of this resolution, providing it does not infringe upon the laws of the country.
7. That this Association condemns the practice of making indiscriminate selling connections, and insists upon its members confining the same to only high grade, efficient and reputable representatives whose loyalty to the industry is unquestioned.
8. That this Association condemns the practice of misleading advertising and misrepresentation as to quality of material sold by members or their selling connections, and insists upon their refraining therefrom.
9. That this Association recommends that its members do not lose sight of the fact it costs more to sell and absorb the accounts to retail trade in neutral territories than to a preferred dealer.

Congratulations are due F. W. Butterworth, who drew up this set of "rules." If followed implicitly, it means that the face brick business, both manufacturing and selling, will become more and more profitable, as the days go by, and more pleasurable to those who are in and of it.

Western Paving Brick Men Re-Elect Nesch.

The annual meeting of the Western Paving Brick Manufacturers' Association, held at the Dwight building Dec. 16 and 17, resulted in the re-election of Robert Nesch, of the Pittsburg Paving Brick Company, as president and George W. Thurston secretary. E. A. Brecht was elected vice-president and E. E. Trowbridge, treasurer. A new board of directors also was elected.

The reports submitted by Secretary Thurston indicated that the Western Association had had a highly successful year, promoting a volume of brick paving that thoroughly justified the existence of the organization. Among the guests at the annual dinner, which took place at the Baltimore hotel Jan. 17, was Prof. Jesse L. Tucker, engineer at the School of Engineering of the University of Oklahoma at Norman, Okla. Prof. Tucker made a short address, complimenting the Western association on its good work. A good deal of regret was expressed over the inability of Iverson C. Wells, editor of "Brick and Clay Record" to attend. Mr. Wells wired his regrets, explaining that a confusion of dates made his attendance impossible.

Who's Who

Being Somewhat Personal and a Little Bit Reminiscent with the Clayworker as the Target of the Camera Man and Editor

I.—Bad Roads Lead Missourian to Brick
II.—Clayworker Who is an Optimist
III.—A Red Headed Brickmaker Who Smiles at Failure

A MAN OF DESTINY

ROBERT NESCH.

IT IS said that little things often control the life of man. An impassable road in front of the boyhood home of Robert Nesch led him into paving brick manufacture and controlled his destinies, it is declared, and so the saying is true in his case at least.

Mr. Nesch not only went into the manufacture of a permanent road material, but he became president of the company he associated himself with—the Pittsburg Paving Brick Co., of Kansas City, Mo., and later headed the Western Paving Brick Manufacturers' Association.

So well has he held both positions he is still at the helm of the two organizations, the Association within the past week having re-elected him to guide its destinies during 1914.

Mr. Nesch is a firm believer in publicity and practices what he preaches both in his clay plant and in the aggressive association which he heads.

A MAN OF OPTIMISM

JOHN W. ANDERSON.

JOHN W. ANDERSON, president and general manager of the Woodland Clay Co., of Woodland, Ill., knows what it is to tackle the business end of a hornet's nest. He knows because he has been made the butt end of a nice little legal entanglement brought by one of his business associates.

Like all internal disorders nothing but a good dose of epsom will clean up the foggy atmosphere and so the court appointed a receiver and Anderson and his associates are being given a chance to become friends once more.

The receivership, to the credit of Anderson, was not appointed because of financial difficulties, as the concern is solvent and is and has been making money. But that is what makes it so hard for Anderson.

Anderson is optimistic, as well as a good clayworker and executive, and says everything will be going fine before the Spring season opens.

AARON PHILLIPS.
As He was at 18 *and As He is at* 73.

A MAN OF ENERGY

WHEN Aaron Phillips began making brick down in Kentucky, forty-three years ago, his capital consisted of $500. That was all the money he had and that was saved out of his earnings while working as a bricklayer. But, besides that money, he had an abundance of red hair and a bull dog jaw that clicked like a steel trap. He was an executive of rare ability.

The energy of a red-headed man is proverbial and the truth of the proverb was never more forcibly illustrated. It was no uncommon thing for Aaron Phillips to work as a bricklayer ten hours and then work all night burning brick. This is the breed of men that really create wealth. Such men are not always captains of industry, but they set an example which, if followed by more people, would end poverty.

Mr. Phillips has been near financial ruin on more than one occasion, but always rising like the phoenix, he has triumphed over all obstacles. As a man of pluck he stands without a rival in the whole clayworking world. His dealings with the public have been such that his word is as a gold bond.

The accompanying photographs show him at the age of 18 when his red hair and freckled face were in their glory. The other is a recent picture showing the man at 73. A strenuous life has given him a constitution of iron. Apparently he has many years of useful life to live.

Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Tunnel Kilns for Burning Pavers.

283. *California.—I should appreciate it very much if you will put me in touch with anyone who can give me the information necessary for the erection and operation of a tunnel kiln for use in burning pavers. The material requires a temperature of about 2,300 degrees F., and I have had varying reports as to the feasibility of using the above method of burning for this purpose.*

One of the experts to whom we referred this letter replies as follows:

"The tunnel kiln at the present time is not of a status to permit of its use in burning paving brick, or for the burning of any clay containing carbon even in small amounts. The greatest difficulty experienced in the use of this kiln, especially in burning heavy ware, such as paving brick, is that of oxidation. To burn paving brick, or a similar material successfully in a kiln of this type, it would be necessary to have the kiln of such enormous length that the feasibility of the plan is out of the question. It must be understood that for oxidation the element of time is just as essential as is the presence of the necessary oxygen, and in the ordinary tunnel kiln of the usual length the time would not be sufficient for the complete oxidation so necessary in the burning of paving brick. This kiln is all right for burning thin hollow ware or porcelain, or for common brick where the problem of oxidation is unimportant, but for burning pavers it is decidedly impractical."

And yet, as a matter of fact, continuous kilns are being used for burning pavers and by some of the largest plants in the country and we have in mind, as among some of these, the Bessemer Limestone Co., Youngstown, Ohio, and the Albion Shale Brick Co., of Albion, Ill., both of which have the longest tunnel kilns ever erected.

Wants a Line of Face Brick in Detroit.

303 *Michigan.—I wish to get in touch with some good face brick manufacturers who are not represented in Detroit or who wish to make a change with a view of representing them in this market. What I want are good fair brick, both red and browns, from plants that are within a reasonable radius of this market so that the freight rate will not keep their product from getting good business.*

We are sending you, under separate cover, a copy of our Annual Review number, which contains the cards of a large number of clay products manufacturers from whom, in all probability, you will be able to select a sufficient number of concerns who are either not represented in Detroit or whose representation there is not altogether satisfactory.

You may be pretty well assured, however, that all plants which come up to the specifications given in your letter—making a good brick within a reasonable radius of the Detroit market, have already been taken care of by one or more of the face brick concerns with whom you will be in competition.

It is easy to see where men who have been established for many years as brick dealers, would be closely in touch a plant making a good product at a fair price and within a with the situation which affected them so vitally as would favorable freight limit.

In point of fact, "accounts" of this kind are the greatest asset a brick dealer can have—much greater than an established trade, as the latter is apt to change at any time, going to a new concern, particularly if that concern seems to sell at a lower price than those which have been established for years.

As to Freight Rates.

306. *Illinois.—I would like to know how to apply for freight rates from this place to different places, such rates as are mentioned on Pages 1278-79 in your Dec. 16 issue of "Brick and Clay Record."*

Illiopolis, Ill., from which place this query comes, is on both the Wabash Railroad and the Illinois Traction System and it will be necessary for you to apply to both roads, in order that you may be sure of securing the most favorable rate, in case more than one rate be in existence. Make up a list of the points to which you expect to make shipments, and incorporate it in a letter addressed to F. A. Barber, Chief of Tariff Bureau, Wabash Railroad, St. Louis, Mo., and a similar list, enclosed in a letter, addressed to J. E. Dillon, General Agent, Illinois Traction Company, Danville, Ill. In these letters, state that you want the lowest established rate on common building brick and on drain tile, in carload lots, from Illiopolis, Ill., to the various points mentioned, and the lowest less than carload rate on the same materials,. if any rates other than class rates, have been established. If you do not receive replies to these letters within, say, ten days, please advise us and we will do what we can to secure you prompt attention. We would have been glad to have been more definite in this reply had we known what points you seek to reach.

Glazes on Brick

255. *Oklahoma.—In looking over the list of clayworkers' books, I am constrained to ask if the one you advertise, "Manufacture of Glazed Brick," explains how to get the different glazes on brick? I enclose stamped envelope for reply. I also enclose $1 for book "How to Analyze Clay."*

The book referred to contains many practical recipes for glazes and is the best published on the subject.

As to the Walls of a Kiln.

266. *Ohio.—Would like to find out all about round kiln construction. We intend to rebuild two kilns in the Spring and want to know how thick the walls should be; how thick the fire brick lining should be; if the lining be tied to the wall proper; how should a top be put on and what height for top to correspond with wall.*

The walls of a kiln should never be less than 18" thick, with a hob of 24". It would be preferable, of course, to build them 24″ thick, with a 36″ hob. A 4″ lining should suffice and it should be tied into the wall proper. Depending upon the class of ware to be burned, the rise of the arch should be one-fourth to one-fifth the diameter of the kiln. the larger ratio being used when clean ware is a criterion, as in the case of face-brick. Our advice to you, however, is to consult some of the several expert kiln builders whose ads are appearing in "Brick and Clay Record."

Wants Book on Manufacturing.

270. *Indiana—I am desirous of securing a publication dealing with the manufacture of brick from shale, treating of the various kinds of shale, method of manufacture, kinds of kilns, relative efficiency of various systems and methods of burning, etc. If you have anything of this kind will be glad to have a description of it at the earliest possible moment.*

Two books—"Modern Brickmaking," by Searles, and "The Clayworker's Hand Book," cover the ground mentioned probably better than any other publications. The first sells at $5 and the other at $2. They are both listed in our Book Department and will be mailed postpaid.

The Underwood System.

271. *Canada—I am going to start a brickyard near here and Mr. Berg of the Berg Machinery Co., Toronto, gave me a copy of "Brick and Clay Record," Nov. 4 issue, in which I notice an article about some engineering company taking over the Underwood kilns. You refer in the same article to an investigation you made of this system, a report of which appeared in your Oct. 21 issue. Will you send me a copy of that number?*

We have complied with our Canadian reader's request and forwarded him the copy asked for.

As to Ceramic Schools.

272. *Iowa—Will you please send me the address of the nearest ceramic school for clayworkers? Have had several years' experience in the clay business and desire to take a short course in ceramics this winter.*

The Iowa State College at Ames, Ia., is your nearest school. A special short course opens Dec. 29 and continues up to and including Jan. 9. A ceramic department is also maintained at the Illinois State University at Champaign, Ill.; at the Ohio State University at Columbus, O.; at New York State School of Clayworking and Ceramics, Alfred, N. Y., and at New Jersey State College, Rutgers, New Brunswick, N. J.

Interested in Power Requirements.

273. *Pennsylvania—We have been advised that frequently there appear in your publication articles concerning the manufacture of clay products that would be useful to us in deciding on the power requirements of various clayworking plants. We have been referred particularly to the issue of Dec. 2 and will be pleased to receive a copy of the same.*

We have sent the copy asked for.

A Book on Soot.

281. *New York.—Will you send me a copy of the book on "Soot" published by Simonds & Co.?*

We have no such book listed and Simonds & Co. disclaim any knowledge of it. We also have inquired of several publishers with the same negative results. Can any of our readers aid 281 New York?

As to Prices of Drain Tile.

256. *Tennessee.—We are contemplating the manufacture of drain tile in connection with our brick plant and would like to have information as to prices at which 4″, 6″ and 8″ drain tile are selling at the kilns in the Middle West, particularly in Ohio, and also any information you may have in reference to the plants manufacturing tile in Georgia, North Carolina and Tennessee. It has been suggested to us by R. D. Marsden, acting chief of drainage investigation, U. S. Dept. of Agriculture, that you could give us this information.*

We have made a very exhaustive information on this subject and from the advice we have, we quote the following prices per thousand feet as being averages for the Middle West, particularly in Ohio:

3½ inch tile..........	$13.	6 inch tile..........	$30.
4 inch tile..........	15.	7 inch tile..........	40.
5 inch tile..........	22.	8 inch tile..........	50.

We have no data on the Southern manufacturers. Will some of our readers in Dixie come to our rescue?

Dull Glaze on Floor Tile.

158. *Mexico.—We would like to learn something about putting a dull finish or glaze on floor paving tile made of good shale which vitrifics at cone 03.*

This question was asked sometime ago, but owing to our Mexico readers failing to give us the vitrification point in his first letter our answer is delayed somewhat. Here are two glazes which may work nicely, although no positive assurance is given as implied:

CLEAR GLAZE.	White lead................	168
	Whiting	20
	Feldspar	83
	China clay	13
	Flint	36
MATT GLAZE.	White lead	142
	Whiting	20
	Feldspar	139
	Calcined clay	22

If these do not turn out well, we ask our correspondent to please advise us and we may be able to suggest something else.

Another matt glaze, maturing at cone .03, is as follows:

$$\left.\begin{array}{l} .15\ K_{2}0 \\ .25\ C_{a}0 \\ .60\ P_{b}0 \end{array}\right) \quad .38\ A1_{2}0_{3} \quad 1.36\ Si0_{2}.$$

An addition of .08 eq. $Cu0$ produces a pleasing green, while brown is obtained with an addition of .10 eq. $Fe_{2}0_{3}$ and black with .08 $M_{n}0_{2}$.

Expressed in terms of batch wts. the above glaze is as follows:

83.4 parts potash feldspar;
58.9 parts kaolin;
410.9 parts red lead;
25.0 parts whiting.

For the colors mentioned, add 5.1 parts of black copper oxide, 16.0 parts red oxide of iron (hematite), or 11.4 parts of manganese dioxide.

About Home-Made Wooden Brick Pallets.

320. *Texas. Kindly advise me as to the best way to make wooden pallets for drying brick on racks—the simplest, most inexpensive way to make a good pallet.*

The best and cheapest way to make wooden pallets is—to use an Irishism—not to make, but to buy them. Home-made pallets, even where lumber is free and labor cheap, are generally expensive, as they have a tendency to warp and spoil the ware. The manufacturers of wooden pallets use machinery and have various ways of reinforcing peculiar to the type they are making. These pallets are uniform in size, weight, elasticity and wearing quality. Galvanized metal pallets are finding favor in many yards. Why not write to one or more of the manufacturers that advertise in "Brick and Clay Record"?

Sends Clay for Analysis.

291. *Oregon.—I am sending you by express a parcel of clay with two samples which I wish analyzed. The parcel marked No. 1 is about three feet of top clay; the other, No. 2, is from a strata about four feet below the top dirt. In making this analysis I would like your full view in regard to either or both clays making a commercial brick and what class of machinery would be best adapted to it.*

The country is undergoing considerable development and as yet no one has found any clay that would make a good brick, several concerns failing in the attempt. We have burned a kiln of 10,000 hand-made brick which show up very well with the exception that they have considerable shrinkage and are a little porous, which might be remedied if we knew how.

We have also just finished running 20,000 through an old style auger machine but it will be some time before they are dry enough to burn as we are new at the business. I fully realize we should know the full value of our clays before purchasing machinery.

The clay samples are altogether too small to make a test in order to decide these points. It would be impossible for any one to make tests on ten or twelve pounds of clay and tell conclusively whether that clay is suitable for the manufacture of brick on a commercial scale, and still more impracticable to tell from such a small sample just what kind of machinery would be best adapted to work the clay.

It is true that laboratory tests on a small sample of clay will tell whether the clay has commercial possibilities or not but tests on such small samples are not conclusive as to the actual working of the clay on a commercial basis.

In order to make a definite test, it would be necessary to first determine the drying behavior and best burning temperature of the clay, and determine shrinkage, and porosity changes with gradual rising temperature. If these tests showed up favorably, then a large sample of not less than 300 lbs. should be tested out by the different processes—dry press, soft mud and stiff mud, making full size brick or blocks or clay samples of the kind that the party wishes to make. If you wish a thorough practical test made, we advise you to send not less than 500 pounds each of your clays, taking especial care to select these samples so that they will represent fair averages of the clay deposits. The clays can then be tested out on a sufficiently large scale in order to determine whether they have any commercial possibilities or not. We might add that, while we do not maintain a testing laboratory we have arrangements with some of the ceramic departments of the state universities whereby this work can be done at cost to our subscribers.

Hollow Tile and Stucco Houses.

309. *Indiana.—Enclose find 50 cents for which please send me a copy of "One Hundred Bungalows." If you have anything in hollow block and stucco houses please advise.*

There is a new book, just off the press, entitled, "The Hollow Tile House." This book has chapters on tile making; old world stucco; construction; cost; history of the use of hollow tile for houses; architects' tile houses; tile in stucco surfaces and various other subjects of a similar nature. There are a number of very fine illustrations and photographs and the book should be in the hands of every manufacturer of hollow block. It will be added to the "Brick and Clay Record" Clayworkers' Library, and sent, postpaid, on receipt of $2.50.

Radford's "Brick Houses and How to Build Them" is another very good book, which is devoted in the main, as its name indicates, to brick, although some tile and stucco houses are given. The price of this book postpaid is $1.

Wants to Invest Capital.

323. *Michigan.—We are indirectly interested in a matter involving the investment of an enormous amount of capital, for the purpose of improving the process and increasing the efficiency of clay working plants, especially those manufacturing common and face brick.*

A point has been raised recently on which we would like to secure some reliable information and statistics. The point in question is: Has the cement business cut into the brick business to any great extent and is there any possibility of it's eventually eliminating the use of brick entirely for construction work?

We believe that in one of your recent numbers you published a report of the United States Geological Survey, giving statistics as to the amount and value of the clay products produced in 1912 and also a comparison of the increase or decrease over the year previous.

We also have a vague recollection of reading something in your papers about the organization of an association to further the use of brick and to offset any inroads made in this field by cement manufacturers, due to their extensive publicity work.

We realize, of course, that the cement industry has made wonderful strides and has no doubt acquired a position of greater importance than the brick business, but we feel that this position was acquired, not at the expense of the brick business, but has simply increased the whole field and scope of construction work, which would have been impossible in any other way.

Anything you can send us bearing on the points we have brought out, will be greatly appreciated and we want to thank you in advance for your prompt attention to this matter.

While the amount of brick manufactured in this country has been increased each year for the past ten years, this has been due entirely to the increasing price of wood and the better understanding of the fire menace that has come to architects, builders and municipalities. Had it not been for these two things, the immense growth of the Portland cement industry, as it applies to construction work, would have been entirely at the expense of brick and stone.

There seems to be a movement toward a better understanding of concrete, also, and it is not being used as freely as it was in the first blush of the "cement craze." Builders know that a frame house, covered with metal lath and stucco is a bad investment, even though it looks "fireproof" in the first place. Experts are stating that no house costing less than $15,000 should be built of cement. The vast majority of residence work in this country is, therefore, going away from cement. The necessity of uniform mixes, and rigid inspection of concrete work is being impressed upon contractors and architects by serious concrete "failures." With these precautions and supervision, the cost of concrete work will advance to a point where its main claim to attention will be gone—that is, its cheapness.

We would be glad to tell you that the organization of an association to offset, by publicity, the efforts of the allies cement interests, had been a success. The fact is that it is very quiescent at the present time. The efforts of the B. B. A. is confined to the distribution of the printed matter compiled and issued in former years. This association was practically put out of business by the lack of support given it by the brickmakers at large.

It may be that the newly formed American Face Brick Association will take up publicity work in the near future. That will be determined largely by what is done at the coming meeting of the directors of the Building Brick Association, the organization alluded to in the former paragraph.

On the other hand, the National Brick Manufacturers' Association may give it new life at New Orleans, in March.

We do not believe that concrete will ever make any greater inroads on brick than it has in the past. In fact, the amount of damage it will do will be less, rather than as much. Hollow brick and hollow building block will, however, have a tendency to supplant solid common building brick.

In the Geological Survey report recently issued for the year 1912, the total value of clay products is given at $172,811,275 while that of cement is $67,461,513. This, of course, shows that the amount of clay products manufactured is nearly three times as large in value as cement. This same report also shows that clay products had an increase of about ten million dollars in 1912 over 1911. The gain in cement production, 1912 over 1911, was about $750,000, according to the same report. As a matter of fact, despite the slump in business in the closing months of 1913, which affected all large in value as cement, as a building and construction branches of industrial and commercial as well as the clay product industry, burned clay made rapid strides over 1912, which is covered by the above reports.

If you will refer to the Jan. 6th issue of "Brick and Clay Record", you will note that in the Annual Review given therein, we have a most optimistic outlook for 1914 and that never before in the history of the industry has there been such real active promotion work done by the brickmakers of the country.

All the various associations have shown an increased interest in publicity and we believe from the plans that have been outlined to us, that 1914—barring, of course, some unforeseen financial depression throughout the country—will show more prosperity among the clayworkers of the nation than ever before.

Wayne County Concrete Roads.

325. *Minnesota. Will you furnish me with a copy of the pamphlet entitled, "The Truth About the Concrete Roads of Wayne County" by Paul E. Green and any other literature you care to distribute concerning brick and other pavements? Could you advise me whether the cost of maintenance of Wayne County roads as stated by Mr. Green was the cost of maintaining concrete roads alone or if the stated amount includes maintenance of other roads?*

We sent this subscriber a copy of the article "The Truth About Wayne County Roads" by Paul E. Greene, which is the only thing which we have at the present time which would interest him in connection with highway work.

Answering your second question, relative to the cost and maintenance on these roads, we will say Mr. Greene had reference only as to the concrete roads.

Wants Books on Equipment.

308. *Wisconsin.—We will be pleased to have you advise us concerning a few of the best books on the clay working industry. We particularly desire books treating of the design, character and construction of equipment, manufacturing operations and costs of production.*

"Modern Brickmaking", by Searles, which we list in our book department at $5, will give you a fair idea of the design, character and construction of clay product equipment and the manufacturing operation. The question of cost of production, however, could not be answered in a book as no two clays are alike, nor is the treatment the same. Costs vary in various sections of the country and there never has been any attempt, so far as we know, to compile any statistics along this line.

Wants Canadian Statistics.

307. *Ohio.—Is there a record of the manufacture of soft brick in Canada. If not compiled for 1913, is there such a record for 1912, and how can I obtain it. Also do you know how much soft brick is made in Australia?*

On page 56 of the Jan. 6th issue of "Brick and Clay Record", under the heading "Canada Makes Rapid Progress", you will find a fairly good review of the clay products industry in Canada for 1912. On the following page, there is a short item about brick made in Australia, which is the only information we have.

Is Interested in Continuous Kilns.

296. *North Carolina.—A brick company in which I am interested is about to install new kilns and I would like to have the copy of "Brick and Clay Record" which contained a writeup of the Klose Kiln and give me the names and addresses of any firm using the same. Our company also is very desirous of making use of the latest and most approved methods of drying and burning brick and would like to have any information regarding the best dryers and kilns which have been proven successes.*

The issue mentioned was the Dec. 1, 1912 number, a copy of which has been sent this subscriber. Kilns and dryers, of which there are any number, must be selected with some idea as to local conditions. We have placed the wants of 296 North Carolina in our Service Bulletin, which goes to all manufacturers who carry advertising in this journal, and he will receive the necessary information promptly.

Eddy's "New Competition."

335. *Alberta.—We are desirous of obtaining the book, "New Competition", by Mr. Eddy, who treats on the "Open Price Policy." When can we obtain it and what is the price?*

This book may be obtained of nearly every bookseller or will be mailed postpaid by our Book Department, upon receipt of price—$1.50.

As to Sand Lime Brick Plants.

334. *Michigan.—In your issue of Dec. 2 (page 1147) you had an article on the development of sand lime brick plants. in which you gave the number of plants operating in various states. We would like very much to get a list of those.*

We have no complete list of the sand lime brick manufacturers and suggest that you write to W. E. Plummer, 211 Fillmore Ave., Buffalo, N. Y., who is the secretary of the Sand Lime Brick Association and who, undoubtedly, can supply you with the full membership list. In our Jan. 6th issue, on page 76, you will find a report of the Tenth Annual Meeting of this association and this carries with it a full registration of members at that meetng.

Has Scum Troubles.

304. *Utah.—I am having my troubles and see some of the other brickmakers are by the questions they ask you. Your answers have helped me in some of my troubles, the worst of which is a scum which comes out on the brick and through the plaster after being wet to put in the wall. My brick are a clear, clean color before being wet.*

Your recent article by Prof. Chas. F. Binns on the subject of efflorescence said that chloride of barium will cure it. The scum comes out so badly on some of the brick that they scale off after going into the wall. I do not have trouble with scum before being burned or before the brick are wet.

(*Continued on page* 386.)

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

Humidity of Air in Tunnel Dryers.

Control your dryer so that the air leaving it as near saturated as possible. A humidity of 90 to 95 per cent is to be preferred. Low humidity means too rapid drying in the early stages, which in turn is apt to result in cracked or checked ware.—C. S. K.

Clay Analysis.

Do not build a brick plant on the basis of a favorable analysis turned in by any chemist. A chemical analysis is no doubt of value for some purposes, but it positively will not foretell the burning behavior of a clay. If you want to know what your clay will actually do, try it under conditions as near as possible approaching those under which it will be used—C. S. K.

Exit Temperature of Waste Heat Dryers.

The efficiency of a tunnel dryer, as regards the utilization of the heat, does not progress uniformly with temperature. Efficiency rises with the temperature up to a certain point and then decreases. It can be shown by calculation that in most dryers that this temperature is between 90 and 95 degrees F. Therefore, keep the exit end of the dryer as near this temperature as possible.—C. S. K.

To Hasten Lime-Spotting.

To avoid having lime-spotted ware showing up on the job, drench the stock piles with water and allow to stand a few days. It is the slacking lime in pebble form which causes the damage, and the moisture helps the process. It is then a matter of sorting to get a "no-lime spot" car of ware.—M. D. B.

Notes On Lamination.

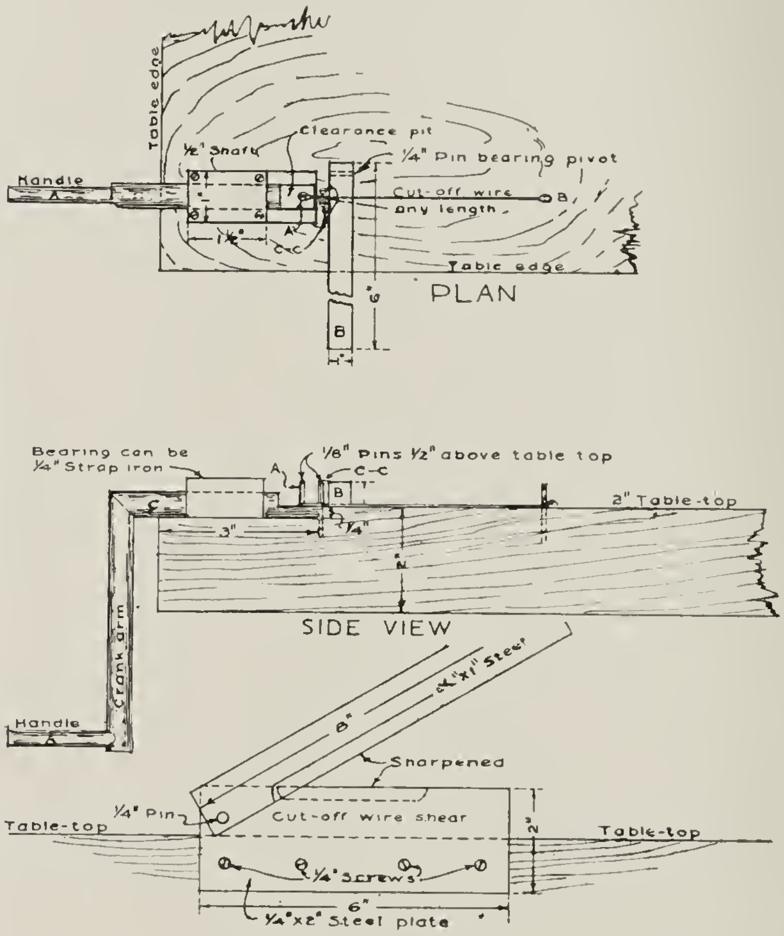
Cures for lamination are offered in endless variety, and every once in a while some one pops up with an idea on the subject that is worthy of special notice. A few days ago, a gentleman of wide experience, who claimed that he could prevent lamination in any clay under any circumstances, had something to say on the subject that seems to be worthy of notice. A particular clay was under discussion, and a man of equally broad experience claimed that the addition of sand to the clay would be the logical method of eliminating the trouble. To this it was replied: "I agree with you that the clay requires more pugging, but disagree with you in your suggestion that sand should be used. You could not vitrify a brick with sand in it. I further agree with you that lamination is found in soapy, stringy clays, for when the water touches it, it rolls up in little balls and larger balls and these are not mashed together until they reach the auger, where they are squeezed together. I claim that this is where the lamination takes place and not in the die

THIS IDEA WINS $5 PRIZE

H. S. L., a Chicago correspondent, wins the $5.00 prize for the best idea submitted for this issue. It follows:

The sketch herewith shows a device for twisting wires to be used on automatic cutters. By the use of this simple apparatus, the pug-mill man or the brick machine tender can easily twist all cut-off wires that are to be used, without loss of time or wire. The shear is self-explanatory.

To use the twister, first lay back the clamp (B) which swings through a vertical arc, and then lead the wire between the pins (c.c.) around the pin (a) and back, between pins (c.c.) far enough to catch the end under clamp (B). With the right hand, bind the two wires under clamp (B) and with the left hand, revolve clockwise, the shaft (C) by means of crank and handle (A) the desired number of twists.



Release clamp (B) remove the loop from pin (a) and place it over pin (b). Again lead the wire between pins (c.c.) around pin (a) and back between pins (c.c.) to clamp, drawing the wire taut between (a) and (b). Clamp and twist.

Remove the cut-off wires thus formed and clip it from the parent coil by means of the shear which is illustrated.

The cut-off wires thus formed are sufficiently perfect to satisfy the average brickmaker and give excellent service.

Have you a better idea? Send it in. It may help a fellow clayworker and at the same time win the $5 prize. You are sure at least of getting $1 if the item is printed. Address: Superintendent Department, "Brick and Clay Record," Chicago.

as you state." This seems worth investigating, and is worthy of a thorough testing.—W. W. P.

Mix Fire Clay in Sewer Pipe Material.

When making branches of sewer pipe it is usually of advantage to mix about 30 per cent fire clay with your average pit clay for filling up and rounding off seams and joints. This does away with a great deal of shrinkage cracks as well as fire cracking.—David W. Jasper, 309 N. 7th St., Barberton, Ohio.

Testing Moisture in Dryer.

How many know how much moisture there is in the dryer? A simple hygrometer which progressive housewives use in keeping a record of the humidity in the steam or hot-water heated house, and which can be bought wherever thermometers are sold, will supply you with the necessary information. They usually sell at $1.25.—T. K. S.

Test Clay Bank for Lime.

If you are troubled with lime spots in your burned ware, it may be that the lime occurs in the clay bank or pit in such a way that it is commercially possible to eliminate it. A sure test is Hydrochloric Acid or Muriatic Acid (ten cents' worth at the nearest drug store). Start at bottom of pit and drop a few drops each few inches, from bottom to top, also on all peculiar formations that appear. If the acid causes bubbling, you are certain of lime being present. All clay showing up to this test should be eliminated, unless the cost of labor and waste in material is too high.—M. D. B.

Drain Tile That Crack.

An Illinois drain tile manufacturer, who uses a shed with steam pipe beneath a slatted floor to dry his ware, had trouble with the larger sizes which cracked at the floor end because of the uneven heat, the slats underneath holding back the heat in one place and the open spaces permitting it to strike the ware in another. He eliminated these cracks by cutting a narrow rim from the bottom of the tile as it came from the machine and setting the tile on this ring in the dryer. The ring cracks and leaves the tile proper unaffected. This same manufacturer also sets the tile in the kiln in the same manner. He has the minimum of kiln waste.—T. K. S.

Regulate Pug Mill With Aerometer.

The use of an aerometer on the electric motor that drives the pug mill means a great saving in power and a better and more uniform ware. This device enables the pug mill man to tell the degree of stiffness in the columns of clay by the position of the little needle on the aerometer. There is a certain point where the needle indicates a perfect column of clay. The pug mill man only has to watch the needle and keep it there. If it goes behind this point the pug mill needs more water. If it goes beyond it is getting too much water. He acts accordingly. There is no guess work. Anyone can run the pug mill who can concentrate his attention on the needle.—J. G. W.

Colloidal Graphite A Good Lubricant.

The use of oil for the reduction of friction between shafting and boxing is necessary wherever the shaft turns rapidly. The cost in the year's expense account is considerable. One authority, at least, believes that the expense may be materially reduced by the use of colloidal graphite. Chas. F. Maberry, writing in a recent issue of "Engineering and Industrial Chemistry," says: "Of all known lubricants, the substance of graphite alone possesses the qualities of a normal lubricant," and commenting on a series of tests, "It appears, therefore, that the same result in lubrication is obtained by the use of one-sixteenth the quantity of oil that is necessary to maintain the same lubrication without the use of colloidal graphite." The amount of graphite used in these tests varied from one-tenth of one per cent to one-half of one per cent, but .35 of one per cent seemed to be most satisfactory.—W. W. P.

As to Lubrication.

In order to produce a smooth column the non-lubricating or dry die requires a clay tempered much softer than is required by the lubricating die. Consequently ware made from a dry die is more apt to settle out of shape and to shrink more in drying than ware made from stiffer clay coming from a properly lubricated die. Stiffer tempered clay can be run from a sewer pipe or drain tile die than can be worked successfully in an angular die. This is because the friction is uniformly distributed in the circular die while in the angular die friction is excessive at the corners. The corners, therefore, are more apt to crack. If the core of a tile or pipe die is out of center one side of the pipe will be thicker and as the ware issues from the die, it will curve toward the thinnest side, if free to move. By applying back pressure and guiding the pipe it can be made to issue straight, but nevertheless the pipe will warp in drying and burning towards the thin side. If perfect lubrication is applied to the die, both on the inside and outside of the pipe or tile, the friction would be eliminated and the ware will issue straight instead of curved and, under proper conditions, dry and burn straight.

Criticisms on Prize Idea.

In your Jan. 6-14 issue under "Superintendent" I notice the $5 prize idea by A. R. Foxley, Vancouver. This idea has been used in mines and rock quarries extensively. I used the same idea 10 years ago on a brickyard.

The back wheels which engage the outside rails at the dumping point instead of being wide flanged wheels, have the hubs extended out to engage the outside track. The car must be very substantial—preferably of sheet iron or steel. The rope is hooked into a bail that is fastened near the back part of the car and swings over the top. The extra outside rail at the dumping point must not be bent to a level, otherwise the car will not run back automatically. For a small yard this is a good rig, but if the clay is not perfectly dry the operator must get busy with his shovel occasionally. The winding drum is usually near where the car dumps and not below the bottom of the storage bin. However, these little details do not detract from the economical features of the idea which certainly is a good one.—Wm. A. Butler, San Francisco, Cal.

Put Your Name on Every Brick.

Even though you may not have a distinctive trademark, it is well to stamp the name of your concern and the plant location on each brick you make. This can be done with ease, if you use the dry-press or stiff-mud repress process. If, however, you are making your brick side cut, with the stiff-mud process, it is a little more complicated. A brass roller, with the lettering or design standing out from the metal and reversed, can be placed between the mouth of the brick machine and the metal platform that is placed between the brick machine and the cutting table. By a properly arranged spring, this roller may be made to press the lettering into the under side of the clay column and, while it will not strike always the exact center of the back of each brick, it will impress either the name of the maker or the name of the town, or both. This is good advertising and shows that you are ready to "back your material."—D. W. F.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards. Department of Ceramics

Contributing Editors: Prof. Charles F. Binns, Ellis Lovejoy, C. E., Anton Vogt, C. E.

PORCELAIN, as now made in China, and as it has been made for the past hundred years, undoubtedly represents, from a technical standpoint, a very rich and interesting field for the ceramist. A study of Chinese porcelain is not only interesting, but is instructive as well, since at the present time, we are unable to duplicate many of the effects which the Chinese so successfully produce.

Chinese literature on this subject is very scarce and that which is available is of such a nature that it is very difficult to learn anything from it. There are many points of similarity in the manufacture of the articles from the Orient and our own product, and still some striking differences exist, for which reason a comparison of the two should prove interesting.

Chemistry is unable to reveal to us the exact constituents from which this porcelain is made, but it seems that there are only two ingredients, the principal one of which is a white, soft plastic material, which, in the Chinese literature is designated by a variety of names, but which in reality corresponds to our kaolin. The other constituent seems to be similar to feldspar, and acts as the fusible constituent of the body. It has been designated in Chinese literature as Kao-ling and formerly was misinterpreted as meaning kaolin.

The white plastic materials occurs in China in about the same condition as our kaolin. It is found in many places and it is the location of these that has determined the site of the different plants. Some of these deposits have been worked for hundreds of years.

The porcelain made since the beginning of the 18th century apparently contains another constituent called Hoa-che, which is similar to steatite, being plastic and of a soapy feel. This material must have been extremely light in weight, as is evidenced by the remarkable lightness of the ware made from it.

The preparation of the mixture for making the body was indeed simple. The body materials, with enough water to make a thin slip, were put into a large pot, and then stirred with wooden rakes. As the material settled out, it was put through a fine horse hair screen and then stored in a large clay vessel when the water was drained off. To get rid of more water, the slip was poured out onto a layer of clean brick, then covered with a thin linen cloth, another layer of brick applied, then more slip and so on. Pressure was then applied, expelling the water. In this soft plastic condition the clay was spread out on a large smooth stone, where it was turned and kneaded until it acquired the desired working properties.

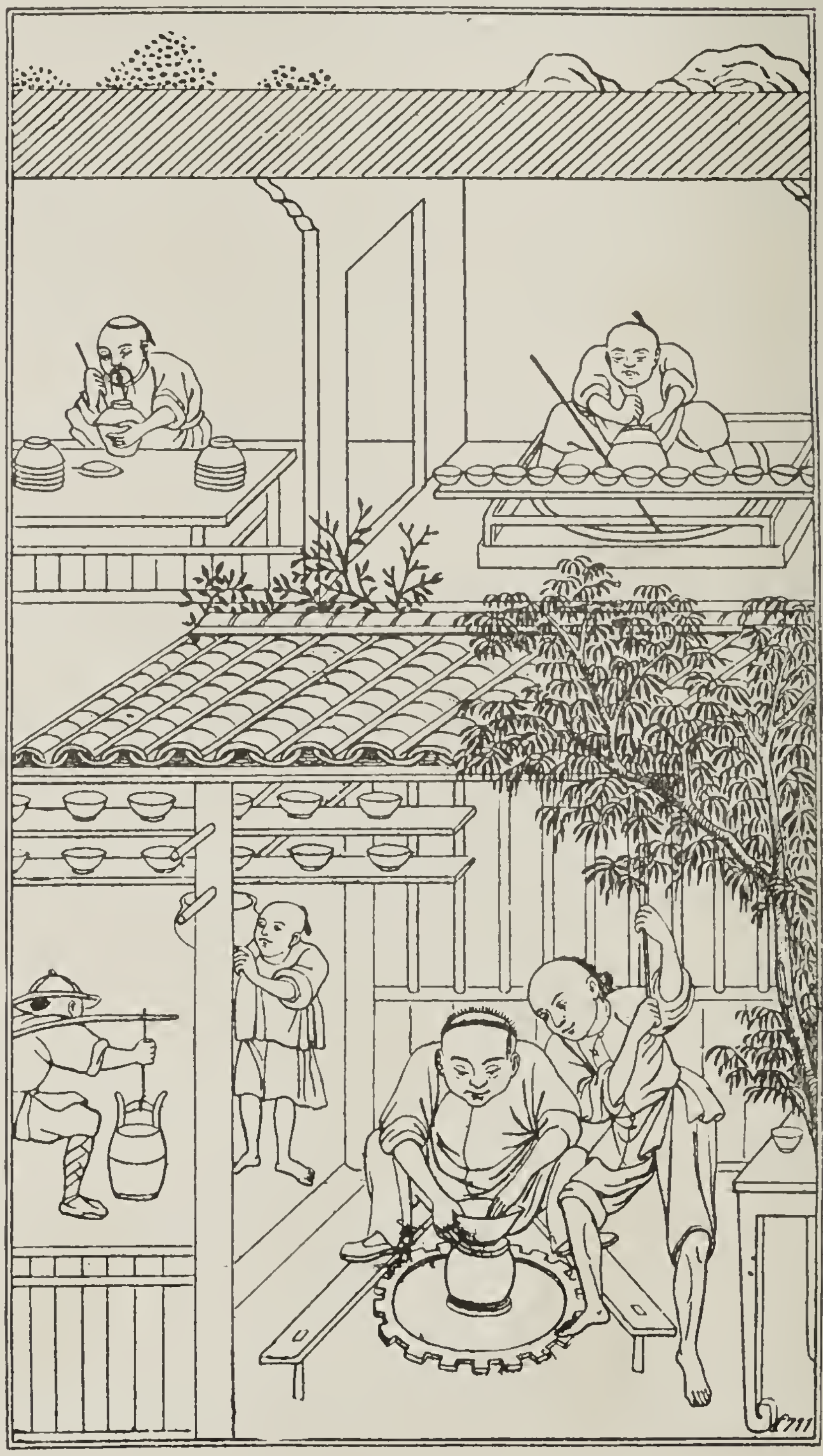


Fig. 1.

The fluxing material referred to above was more compact, resembling our feldspar, and, of course, had to be crushed before use. The machine for performing this operation was a crude affair, consisting apparently of a wheel carrying a series of iron hammers on its circumference, and being operated by a water wheel. This crushing was carried on at the quarry in the mountains, where the many mountain streams furnished the motive power. The length of time required for reducing the ma-

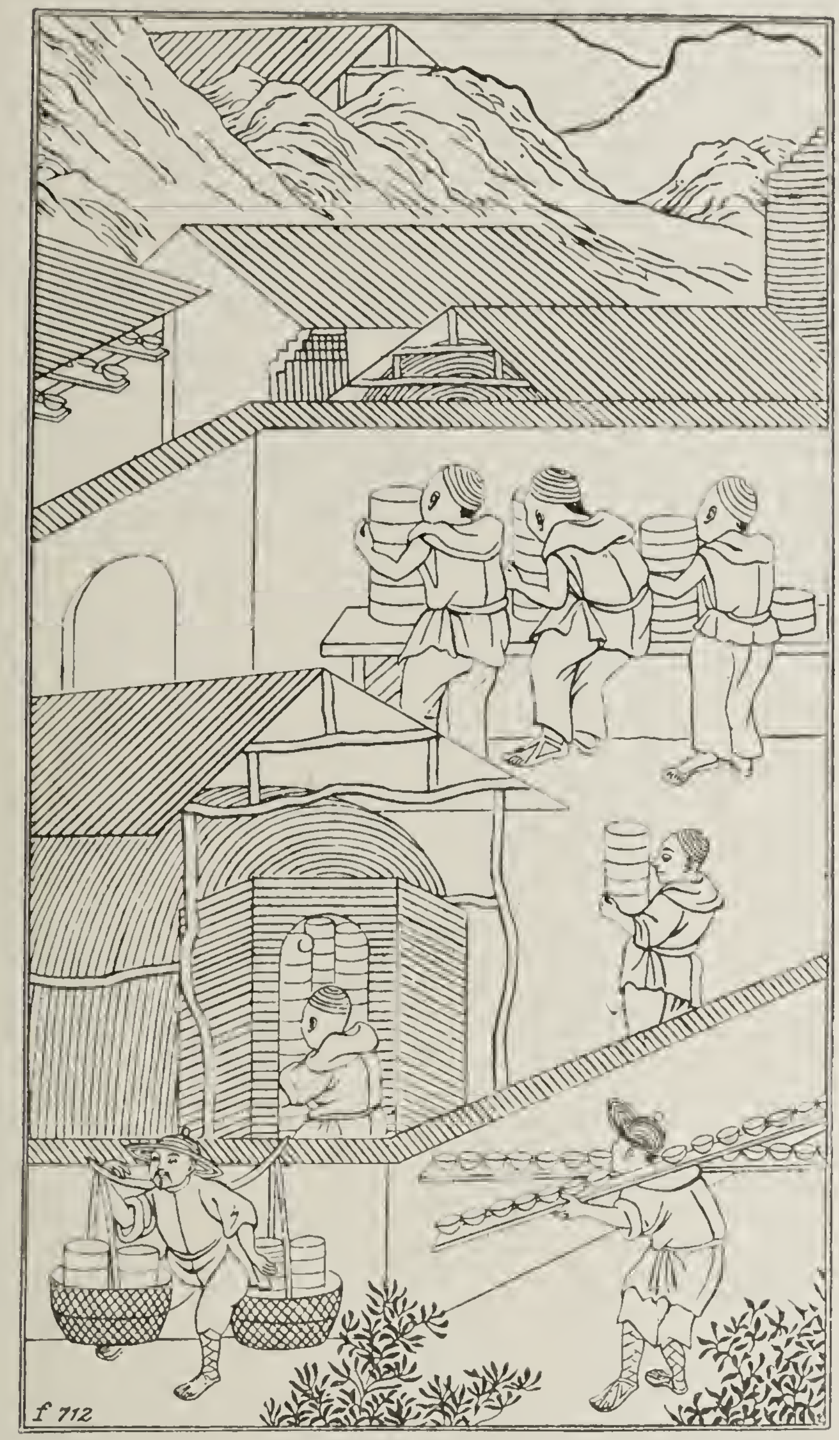


Fig. 2.

terial to the desired fineness varied, evidently, with the season of the year, inasmuch as the water power available was dependent on the season.

In mixing the different constituents of the body, the materials in the proper proportion were put into a suitable container, wetted with water and mixing accomplished by trampling with the bare feet. From the Chinese drawings showing the methods used in manufacturing pottery, it is seen that buffalo were also used for this purpose. Following this step in the preparation small batches of the mixture were then put onto slabs of slate and kneaded thereby, which operation ended the preparation of the body.

The methods employed for fashioning the body into the desired shapes were generally the same as those of today, except, of course, that the machinery used was of a crude sort. It seems as though the casting process, so widely and successfully employed today, was unknown to them. The methods mostly used were turning and pressing, 90 per cent of the ware produced being made by the former method, according to Chinese literature.

Turning was accomplished on the potters' wheel, which, according to the Chinese, was invented by one of their mythical emperors, thousands of years B. C. From the crude drawings available, it is seen that this wheel consisted of a wooden disc, having a toothed circumference, the motive power being furnished by a boy who operated it first with his hand and then with his foot, using a rope to maintain his balance while employing the latter method. The wheel operated within a triangular wooden frame, the turner himself being seated at the apex, from which point he could control the speed of the wheel by means of a stick thrust into the notches of the circumference. A round, heavy block, situated in the center of the wheel, served as a support for the clay mass and also brought it up to a working position within reach of the turner.

When the piece has been turned down it was exposed to the sun until completely dry and then, in the case of the finer ware, was again put onto the throwing wheel and turned down further, an edged tool being used; after this operation the piece was dampened slightly and smoothed down to a finish by means of a fine brush. If this operation were carried far enough, until only an extremely thin wall remained, the wonderful "egg-shell porcelain" was the result, an article referred to by the Chinese as "bodyless," and the thinness of whose walls they compare with that of the bamboo leaf. This porcelain was best known during the 18th century. It represents the height of technique yet reached on the turning wheel.

When the ware was given the desired shape by pressing, the general procedure was the same as that employed by us, viz., the use of hollow molds. These were not made of plaster, but of a sort of yellow earth. The molds were either of one piece or of several, depending upon the shape desired. The calculations necessary in constructing these molds to make allowance for shrinkage in drying and burning was considered extremely difficult and there were only two or three men in all the pottery states capable of performing them. After the ware was removed from these molds, it was dressed down and smoothed in the same way as in the turning process.

In no other feature does the Chinese porcelain differ from our own as in the glaze used and the method of its application to the ware. As is well known most of the European glazes are of the feldspar type, while that of the Chinese on the other hand, is a lime glaze, the latter being more transparent. The lime glazes are also of a splendid luster, some of the 18th century porcelain of the Chinese being unequaled in this respect by ours. These glazes are today valued very highly by the connoiseurs of Chinese porcelain. In addition to the glossy glazes we also find glazes of a soft dull nature.

The clean glossy glazes were always used in connection with the underglaze colors through which they seem to acquire their best effects. The dull glazes on the other hand were used as an undercoating with fusible colors, which appear all the more shimmering and glossy in contrast with the dull, soft mattness beneath.

To the lime content, the glazes of the Chinese also owe most of their greenish color tones which, from an aesthetic standpoint always appear as an advantage in contrast to the absolute white of our porcelain glazes. These slightly greenish glazes also furnish a better background for the color decorations; a better diffusion of colors is attained and sharp outlines avoided.

The glaze of the Chinese porcelain is made up of three principal constitutents; a material much resembling limestone, a vegetable ash, and finally those materials which furnish the fusible constituents of the glaze.

The limey materials is found in many localities. It is of a grayish color and seems to be a strong limestone. The vegetable ash is not obtained from any one plant. In the earlier times it was obtained from burning the shrubbery covering the hillsides and also from bamboo leaves and fir trees. In obtaining this ash the plant in question was spread out in layers between the so-called limestone and then ignited. The material remaining after this ignition was known as yeou-hoel and also hoei-you. This was then carefully cleaned and mixed wet with the other constituents, the best glaze requiring 1 part of ash to 10 parts of the other constituents, while in the cheaper grades the proportion was 7 or 8 to 2 or 3 and in the poorest grades ash was in excess. For testing the correct consistency of this fluid mixture, small trials of the body were dipped into it and examined.

In the earliest times the only method known for applying the glaze seems to have been that of dipping. But as the shapes became larger and more complicated it became necessary to use other methods because of the fragility of the ware, the glaze always being applied to the latter in the green state. Great care was necessary, therefore, even in dipping the smaller pieces. In glazing the inside of the ware the piece was held very carefully in an inclined position over the glaze tub and the glaze thrown in with the other hand. The glazing of the outside was indeed a delicate proposition, using the dipping method. In doing this the hand is put very carefully into the pieces and the bottom then supported by a small rod held in the other hand. The ware balanced, as it were, on this small rod, was then dipped into the glaze.

It can be readily seen why this method was gradually replaced by others. The glaze was either applied by shaking it from a brush or by blowing it on. In the latter method a bamboo rod was closed at one end with a thin cloth gauze and this end then dipped into the glaze. By blowing into the open end the glaze was converted into a spray. On Chinese porcelain one application did not suffice; for ordinary ware three or four coats were applied, while for the finer articles as high as 17 to 18 applications were made.

The kilns employed by the Chinese have always been of the most primitive sort, even up to the present time. Characteristic of the Chinese, no attempt has been made to improve upon them. Ancient drawings show these kilns to similate a cylinder cut through its long axis. They seem to have varied in size with the times. From the 14th to the 17th centuries they were practically square, i. e., equal in length and breadth; the largest of these kilns, used exclusively for burning flower pots, were about 6 feet wide in front, 6½ feet wide in the back, and about 6 feet long. In the later times the kilns were made greater in length than width, this being their general form at the present time. They have also grown in size; their width now is about 10 feet, and their depth 20 feet, while some are as long as 30 feet.

The kilns were built in a battery, as is done in Japan and Korea, so that each kiln got the benefit of the heat radiated by the others. Wood and twigs were used as fuel.

In kilns of this type it can be readily seen that the temperature variation was considerable. This fact has exerted a strong influence on factory operation in China, it being impossible to fill a kiln with ware of one sort, all having the same maturing temperature.

As is our practice the ware was always burned in fire clay saggers. At one time the saggers were burned separately, but later on to cheapen the cost, they were burned simultaneously with the ware with which they were filled. However, some care was exercised, and the greatest part of the saggers, from which the bungs were built, had been in the fire at least once. The saggers were not provided with lids, inasmuch as they were set one above the other.

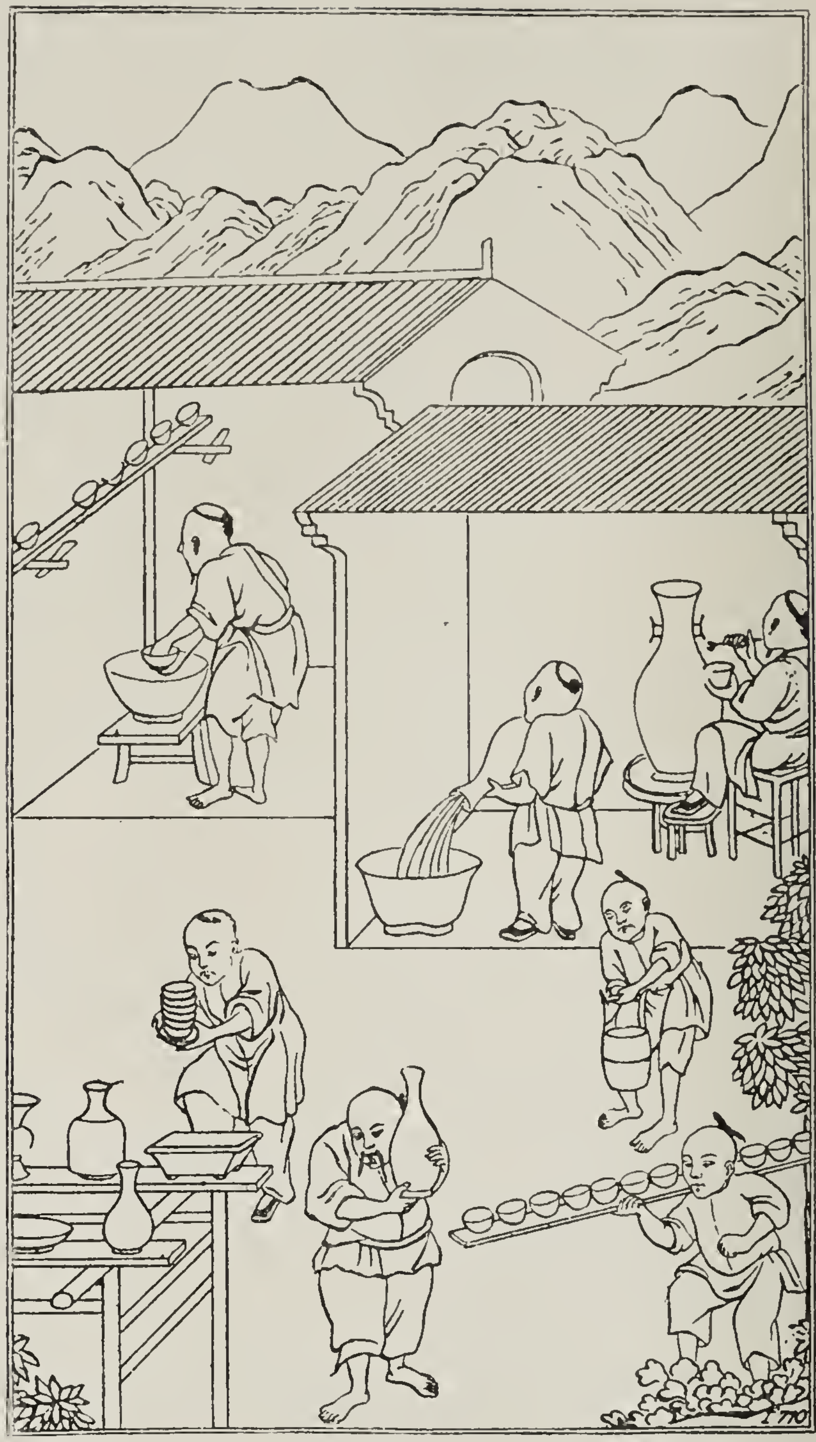


Fig. 3.

In the earliest times the burning process was indeed long and complicated. A low fire was maintained for 7 days and 7 nights in order to dry the ware as slowly as possible, and then the maturing fire continued for 2 more days and finally cooled slowly for 10 days.

The necessary height of temperature was determined by draw trials, the appearance of the flames coming from the stack, the colors of the saggers, etc.

In later times the period of burning has been shortened to about 3 days.: In order to preserve as much residual heat in the kiln as possible the saggers are taken from the kiln while still red hot, and the kiln refilled as quickly as possible, the workmen being covered with damp cloths to protect them from the heat.—Keramische Rundschau.

Waste Heat Drying.

While other industries have utilized very satisfactorily waste heat, combustion gases, etc., from their different heat furnaces, for several years, the utilization of waste heat in the brick industry is still in its early stages of development, and although great progress has been made, the possibilities of the tremendous amount of waste heat available have not been utilized as well as they might. Through the ever increasing usage of the "Absetwagen" (a specially designed car for handling green brick) which had been in operation in the Scandinavian countries, many years before being introduced in Germany, the possibilities of safe handling of the brick as well as the utilization of the combustion gases, have become considerably greater and the methods more satisfactory.

Especially in the case of building brick is the construction of a "combustion gas" tunnel dryer to be recommended, because the entire operation, through such an equipment, becomes more efficient and capable of better and closer management.

This type of dryer, when properly built, has above everything else, the advantage of making the entire plant operation more compact, that is, the steps in the manufacture more nearly approach an endless chain, as it were. It furthermore assures the most exact control of both burning and drying. It is evident that for efficient and economical use of the combustion gases, a fan should be used instead of the stack, because then the heat that otherwise would be used for creating draft in the stack becomes available for drying purposes.

In order to maintain the necessary stack draft the temperature must be carefully kept between 480 and 570 degrees F. This is a fact that cannot be treated with indifference. If now, a fan is used in place of the stack, it is apparent that we can use this heat for drying, heat which otherwise would be used up in creating draft.

If the heat be utilized in the dryer in a correct way very satisfactory results can be obtained. When the brick are first put into the dryer, only atmospheric air is blown through the tunnel. This is followed by the use of hot air, the application of which is under close and exact control. In the final stages of drying the combustion gases from the kiln are used. The exit of these gases from the kiln is controlled by several large valves, the regulation being easily managed. If the gases are especially hot, they are passed through a second tunnel, so as to obtain the full benefit of the heat.

A dryer of this type can easily be managed by the kiln burner, since adjustments are necessary but once or twice a day.

It is apparent that the coal consumption of the kiln using the "bonedry" brick from a dryer of this sort is considerably lower than that of one which must also act as a dryer for the brick with which it is filled and which are not absolutely dry.—Rud. Witte, C. E., in Tonindustrie Zeitung.

Terra Cotta Glaze.

A leadless glaze, to be used for terra cotta, and to be applied on the green ware, burning between cones 2 and 3, is mixed as follows: Feldspar 167.7 parts, carbonate of barytes 39.4 parts, whiting 25 parts, kaolin 12.9 parts, flint 66 parts, borocalcit 67 parts. Another glaze, which will need to be fritted first, is made as follows: Frit feldspar 100 parts, borax 120 parts, flint 200 parts, whiting 60 parts, magnesite 12 parts and kaolin 45 parts. After the frit is ground fine, it should be mixed for every 100 parts of frit with 8 parts of kaolin or ball clay.—Sprechsaal.

Brick Houses Versus Wood

In an article which appeared in the Baltimore (Md.) "News" recently, which was called "A Plea for Wood" certain claims were set forth for that material, and which have called forth a statement by a brick manufacturer, which has considerable interest. He says, in part:

"America is today the only nation which still persists to any extent in building its homes of wood. The use of brick is here in its infancy. We have scarcely begun to realize the possibilities of brick as an economical home-building material.

"When you build a home you are doing more than merely erecting a house. You want your house to express permanence, beauty, charm and hospitality; you want it to be a place of comfort and security for your family. What part of a house, then, can possibly be more important, either in expressing personality or assuring comfort and security, than its exterior?

"There is no doubt that the cheapest initial cost of construction is wood, but if you are interested in economy in home-building, beauty and durability brick has always been conceded to be the leading building material.

"Let us take up the various matters that enter into genuine economy in building. A few years ago in every locality lumber was close at hand, the cost of milling was low, the result was a building material so much lower in price than the others that perhaps it was in those days the most expedient. Through lack of scientific forestry vast forests have been cleared without heed for the future until today our sources of lumber supply are limited. According to Government statistics, the general increase in the cost of lumber during the last 35 years has averaged 100 per cent every three years.

"Admitting that frame construction is cheapest as a first-cost, in the long run it is most expensive. Deterioration starts from the day the house is completed. From that time on it begins to warp, rot, swell or shrink. It requires constant repairs and painting, and the more the painting is neglected the more the other charges mount up. To protect the wood properly the house should be painted every year or two. The annual cost for repairs and painting on a frame house is approximately 2½ per cent of the original cost of the building. Other expenses, such as heating and fire insurance, add greatly to the cost of maintaining a frame-built building.

"Summing up, the advantages of brick over other construction are obvious. Ordinary well-burned brick of good quality is the most satisfactory fire-resistive material. It is always in style, will not deteriorate, eliminates painting and repairing, and owing to the variety in texture and color your home can express your individuality. It will be permanent, and the first cost will be the only cost."

Hydraulic Buys Another Plant.

The DuBois & Butler (Pa.) Brick Co. has sold to the Hydaulic Pressed Brick Co., of St. Louis, Mo., its plants at DuBois and at Cowan, Pa., together with its clay deposits at Helm Furnace on the Buffalo, Rochester & Pittsburgh Railroad. The Cowan plant is to be remodeled and devoted to the manufacture of face-brick instead of paving brick and block. The plant at DuBois has supplied many millions of face-brick to the public schools of New York City and for several years past has made a rough-textured red face-brick, known in the Eastern market as "Caledonian."

The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record." Chicago.

OFTEN it has been said that the problem of the kiln is the hardest to solve about the clay-plant. If one is to judge by the correspondence that reaches this office there should be no question of the accuracy of this oft-repeated statement. William A. Butler, a frequent contributor, and one of our most interesting writers, opens up the discussion in this issue, and we warn him, despite his trenchant pen, that he is apt to draw fire from more than one source. Here is his letter:

> You are certainly getting people started in the right direction by giving them a chance to exploit their ideas, and I am fully satisfied that those who contribute articles to your very educational magazine are more than repaid, especially when the matter is commented on by different people more or less qualified to discuss it.
>
> For instance, when a man criticizes a subject of mine he either misunderstands it or he tells me something valuable, although in most cases I find the majority of critics are in the misunderstanding class.
>
> To "see ourselves as others see us" is a great help, as one of the poets has said.
>
> In reading the December 16 issue of "Brick and Clay Record" I find much of value. The technical paper by Mr. Schmatolla is interesting and instructive from a purely technical point of view, but I never could see from the practical man's standpoint where the economy of gas-firing can approach results obtained from the common Hoffman kiln. The continuous kiln shown in the cut that accompanies his article, is an adaptation of Hoffman's first kiln or ring oven, with the draft reversed. Where the chimney or stack was, in the Hoffman kiln, Mr. Schmatolla places a gas producer. This producer must be built in an iron or steel shell, lined with fire-brick, and the portable connections must also be of steel construction and also lined with fire-brick.
>
> When the producer is to be repaired, the plant ceases to operate.
>
> The utilization of the waste heat for drying, while seemingly ingenious, blocks the way for cars or barrows passing in and out of the doors.
>
> The Scott system of drying the brick in the kiln would greatly facilitate matters in such a case.
>
> While I do not advocate gas-fired kilns, if I were to build one I would introduce the gas at the bottom of the kiln instead of at the top, as is done in all cases except in the Underwood system.
>
> In reading over the article entitled, "Design of an Economical Furnace for Tunnel Drying," I confess I am in the misunderstanding class. The idea of using air of combustion at a higher than atmospheric temperature is good, but the manner in which Mr. Karzen obtains this superheated atmosphere, when he mentions in his article that there is a minus, is more than I can see. With such a furnace as he mentions he could solve the smoke problem, and if the furnace has any of the merits claimed for it, it will fill a long felt want.
>
> The application of gas-firing to furnaces is by no means a recent idea. As far back as 1856 a second edition of Bischof's "Indirect Method of Utilizing Fuel" was printed in Germany. The work is one that may be read with advantage by those contemplating taking out patents in connection with gas-firing, since it affords much valuable information as to whether any proposed improvement contains a patentable idea, or whether it is a reproduction or a modification of an appliance long since known.
>
> Coal dust firing has been demonstrated to be in every way economically superior to any known system of using coal as fuel. In the year 1831 the German Mining Councillor, Henschel, occupied himself with the question of coal dust firing, and so we find that the idea is of German origin and not English, as often stated.
>
> In the year 1872 the English engineer, Crampton, operated a welding furnace at Woolwich Arsenal, arranged for working with coal dust. The present rotary cement kiln using coal dust was brought to perfection in the United States, being practically an abandoned English idea. This refers to the Ransome Rotary Kiln.
>
> The writer has four patents in the United States, that include the use of coal dust, the last of which shows a method of feeding the fine coal at the top of a furnace, so that it falls into an atmosphere of highly heated air for combustion.
>
> There is nothing new in this method in a general way, as I have since seen that a German patent was issued to a cement manufacturing concern (No. 76,170), the coal dust being mechanically fed through a firing-hole in a Hoffman continuous type of kiln.
>
> The only objection raised against this method of burning brick is that the fine dust resulting from the complete combustion of the coal is carried along with the draft (be it ever so little) and is deposited on the brick.
>
> If a special arrangement for water-smoking the brick is used, the argument that any discoloration comes from this course, is groundless.

Mr. Butler is not the only reader who appreciates the liberty given clayworkers in the "Letter Box." We not only invite comments and criticism on whatever subject most interests our subscribers, but place no restriction upon them, unless our insistance that the name and address of the writer be given, can be so classed.

Frank, open-hearted discussion is going to do no one harm—it may result in doing a great deal of good. Let us have it.

Prof. Binns Replies to John C. Boss.

As was expected the letter in this department in the last issue by John C. Boss on "Scumming" has stirred up a discussion which does not promise to end without an exhaustive treatment of the subject by our readers. Mr. Boss took some exception to Prof. Charles F. Binns' article on "Efflorescence" in the Nov. 18 issue and sought to correct what, in his estimation, was a popular fallacy as to the solution of this ever-present problem. Prof. Binns replies to the criticism thus wise:

> I notice with interest in your issue of Jan. 20, a letter from Mr. Boss, in which he refers to my paper on "Scumming." I do not wish to make any extended reply at this time, but would like to clear up two or three points.
>
> First—My paper had no reference whatever to the efflorescence which appears in a brick wall and to which Mr. Boss refers. This phenomenon has no necessary connection with white wash on the burned brick. It has been the subject of several studies and the results are on record, but it was not included in my discussion.
>
> Second—It is beyond a question that white wash is caused by soluble salts which may occur either in the clay or in the water, or which may be developed by the action of outside gases either in the dryer or the kiln. If Mr. Boss can prevent these gases having access to the clay in his dryer or his kiln, he may prevent the formation of these salts, if they are not already present, but no amount of care in drying or burning will prevent the appearance of the salts on the surface if they already exist in the clay or in the water.
>
> Mr. Boss discusses fluently the question of boiling point, etc., but I do not think he will contend that brick ever at first go into an atmosphere in the dryer which is as high as the boiling point of water—212 deg. Fahr.
>
> Furthermore, he states that efflorescence is a deposit. This is never entirely true and it is only partially true in that acid vapors condensed may combine with the lime in the clay. Acid vapors alone cannot cause white-wash.
>
> The subject has too many variations to permit a full discussion in the form of a letter, but if some of your correspondents care to formulate specific questions, I will do my best to answer them.

Note that Professor Binn promises to reply to any specific question that may be asked him. Our columns are offered to you.

Solves His Smoke Problem.

In a recent issue John Sehy, Ashland, Ill., wrote us about a lawsuit which he was involved in with a neighbor who complained of the smoke, soot and gases that came from the kiln nearby. Mr. Sehy asked our advice as to what would be the best solution to his problem, asking if we thought it wisdom for him to continue the legal fight. We referred to a similar action in Chicago, when the Bach Brick Co. was forced to either move or abate the nuisance. This concern decided to abate and installed a system that not only ended the trouble but cut down the fuel cost. We have several letters from readers who gave Mr. Sehy advice similar to ours. We now receive the following from Mr. Sehy:

> I wish to say that I have settled the suit by agreeing to install some kind of a smoke-consuming furnace, my opponent withdrawing his suit. I figured that I could do this much cheaper than to fight him in the courts, and at the same time it would be a business proposition for me in the line of fuel economy. I had this in view when I wrote you and find you were of the same opinion that I was. I thank you very much for your kindness.

As to the Detroit Determinator.

We have received a letter and newspaper clipping from H. R. Straight of the Adel Clay Products Co., Adel, Iowa, which shows how the cement interests are taking advantage of every legitimate and illegitimate method to boost cement and injure clay products. The letter follows:

> I am enclosing an article from the "Western Contractor" which gives some information that cannot possibly be true. We wish you would investigate this and explain through your columns where the information was secured that was used in this article. While I am not interested in brick paving financially, I am a thorough believer in all clay products for permanent construction of any kind, and an article of this sort does not do justice to a really good material. If some of the cement interests have published this article, the public should know it. You have accomplished a lot of good work along this line and no doubt can accomplish more.

The clipping referred to is headed, "A Real Paving Test," and is a reprint of the description of the so-called "Determinator," which has been so generally circulated by cement manufacturers.

We sent the editor of the "Western Contractor" a copy of "Brick and Clay Record," which contained the true story of the Detroit Determinator. The test mentioned in the article was made at Detroit, at the recent road congress, by the Universal Portland Cement Company, and every detail of it was under their supervision. It was expected that concrete would show up better than vitrified brick, because of a similar test made in Chicago about a year ago at the Cement Show. The Universal Portland Cement Company, however, did not take into consideration that in the Chicago test second quality brick—very soft brick—were used.

At Detroit, however, No. 1 vitrified paving block was laid under the No. 1 specifications of the National Paving Brick Manufacturers' Association. Probably Mr. Blair and some of the brick people had something to do with insisting on good construction—at any rate, as you will see by the article in the Dec. 16 issue, the concrete went to pieces early in the test and the brick section was practically unimpaired.

We wrote a letter to the editor of the "Western Contractor" in the hope that he would either reproduce the article in its entirety or make a suitable comment on the same.

Takes Exception to Mr. Houlahan.

In the last issue of this magazine, W. T. Houlahan, vice-president of the Washington State Clay Manufacturing Association, and one of the leading brick manufacturers of Seattle, Wash., wrote a very interesting review of the situation in that state. The article appeared on Page 65 and had a very pessimistic tone. We have a new subscriber—the Washington Brick, Lime & Sewer Pipe Co., of Spokane, who takes exception to Mr. Houlahan's statements. W. E. Way, of this concern, writes:

> On Dec. 30th, 1913, I subscribed for "Brick and Clay Record" on behalf of Thos. P. Hall, who was too busy running this plant to look after this matter himself. We have received your January issue and will say it is by far the best number of "Brick and Clay Record" we have ever seen. We have noted your special offer of your book, "How to Analyze Clay" and while our subscription was sent in prior to the time of noting this offer we believe we are entitled to it and would ask that you forward same to Mr. Hall, as soon as convenient.
>
> We have noted with especial interest the report of trade conditions in Washington state during the past year by Mr. W. T. Houlahan of Seattle. We do not agree with him as to conditions of trade the past year, as we have had the best year of our history and prospects for a very good season ahead. Our plants are running full force at present, which ordinarily is a very slack time.
>
> We attribute this condition to the very superior product we are turning out and take a vigorous exception to Mr. Houlahan's remarks that, "Manufacturers there (Spokane) do not even make good common brick." We do not believe Mr. Houlahan has seen the product we are turning out or surely he would alter his remarks in this respect. All of our common brick are exceptionally hard burned and, when we tell you they weight on an average of 5¾ pounds to 6 pounds each you will readily see that they have the "stuff" in them.

We print the above without comment.

Needs Help in Paving Competition.

> As our town is contemplating paving its main street and the council will not even consider brick I take this liberty as a reader of your paper, to ask for help. I would like to have all the literature available on the subject, also prices per foot, yard, etc., of the best forms of brick roads. I own several business blocks on the street that is to be paved and therefore think I am entitled to at least a peep in, before some concrete contractor or other fake outfit walks away with our city council. F. W. Cheek, President, Rocky Ford Brick & Tile Co., 305 S. Main St., Rocky Ford, Colo.

We have sent all the printed matter we have and also requested the National Paving Brick Manufacturers' Association and the Western Paving Brick Manufacturers' Association to do likewise.

A Reply to Mr. Oudin.

We have a very interesting communication from H. J. Osterlund, sales manager of the Plymouth Gypsum Co., of Fort Dodge, Ia., who writes:

> We were a little amused at the article appearing in "Brick and Clay Record" of Jan. 6, entitled, "Clay Tile Ousts Plaster Block." Chas. P. Oudin, the writer of this article, is a gentleman, whom we, unfortunately, have not had the pleasure of meeting.
>
> It would appear to us that the owner of the building in question did not spend a great deal of time in investigating what would be the best possible material to use in the construction of his building. Had he done so, he would not have been influenced by either the manufacturer of clay or gypsum tile, but would have consulted authorities that are in possession of practical knowledge and who have had the experience which would enable them to decide what partition block would be the best for a fireproof structure.
>
> Had he consulted the different insurance underwriters—refering to the Chicago and New York Underwriters' Laboratory, Inc., the New York Department of Building, Edward O. Sachs, chairman of the British Fire Prevention Committee of London, England, or read the book on fireproofing by H. G. Perring, which fully describes the various tests of gypsum blocks for partition purposes, we are positive that he would not have changed from gypsum to clay tile.
>
> If the manufacturers of gypsum tile should publish the thousands of buildings on which gypsum tile has been used in preference to clay tile, we believe the list would fill many pages of your journal. All factories manufacturing gypsum tile have had to double their capacity many times in order to supply the increased demand for this style of fireproofing.
>
> It is not our policy to find fault with clay tile, or a product manufactured by our competitors, but we should suggest to the gentleman that when he is thoroughly convinced, as we should think he would be at this late date, that the clay tile is not practical for partitions in fireproof buildings and is fast being replaced by gypsum tile, that he turn his clay plant into a tannery or shoe factory, and thus be of service to the public, not an imposition.
>
> It was unfortunate for our friends at Oregon to have their blocks rejected, but we will venture to say that it was not because they were gypsum tile.

We are disposed to remark that Mr. Osterlund's letter affords us almost as much amusement as Mr. Ouden's letter did him, but refrain. What's the use?

Wants Aid in Street Improvement.

We have another reader—the Mulford Vitrified Paving Brick Co., of 507 Stimson Building, Los Angeles, Cal., who seeks aid in fighting asphalt. This firm writes:

> There is some little fight on in this city in the matter of street paving—that is a difference of opinion as to durability and cost of maintenance. The city engineers seem to give asphalt the best deal, therefore we ask you to mail us some printed matter about brick paving, some testimony of some paving engineers, that might have good points in favor of brick. Also, if convenient, send us a list of towns and cities that are using brick to some extent. We thank you in advance for the information, as it means life or death to brick paving here.

We sent a copy of the Wayne County Concrete Road story, which we published in a recent issue of our magazine. In addition to this, we took the matter up with both the Western Paving Brick Manufacturers' Association, of Kansas City, Mo., and the National Paving Brick Manufacturers' Association, of Cleveland, O., and have asked them to forward you all literature and necessary data in their hands.

Cleveland, in Cuyahoga County, is one of the model cities of the country on street improvements and both the county and municipality are using vitrified paving brick almost exclusively, there being some 200 or more miles of country highways in Cuyahoga County. Mr. Blair, secretary of the N. P. B. M. A., undoubtedly, will give you data about these roads, as well as others, throughout the country.

We wish you well in your fight and would like to know the result.

Says Clayworking is On the Wane.

L. S. Kenny & Son, of Hawarden, Ia., is one of the few Iowa firms that sees little in the future to be joyful for. The advertising department recently sent out a letter to a selected list of manufacturers of clay products, asking them to take a small space in the Classified Directory of Clay Products Manufacturers and Dealers. Mr. Kenny wrote, in reply, as follows:

In reply to your request regarding an advertisement in "Brick & Clay Record," I regret that I will have to decline, as the concrete men are laying us on the shelf. They are beating us to it with cement block and cement brick and they even can get $2 per M. more for their concrete brick than we can get for the clay brick. I also see by the report of the Geological Survey that the brick yard is a thing of the past—only 33 left in the state of Iowa. There used to be about six yards in this county—now there are none that are making anything. I think we might as well lay down, first as last, as the fight is a losing one, all of the time. I am thinking of going into the concrete line, especially as the farmers are building so many of their silos in that material that I think nearly all of them will be built of cement in the future. I regret that this noble business (clayworking) is on the wane, but such is fate, and we might as well acknowledge it, first as last.

Did one ever hear such a doleful wail? And from Iowa, too, where, it is said, 1913 was the best year in the history of clayworking, in the state. Our friends at Hawarden must not lose hope. The cement interests have a long way to go before they get the brickmaker on the run. This is shown by official records.

On the other hand, clay products are forging ahead, and 1914 promises to beat all records for production, consumption and price.

The trouble with our Hawarden friends—who say that every plant in Sioux county is shut down—or not making anything, is that they are not taking advantage of their opportunities. Follow the example of the successful clayworkers in Iowa—use printers' ink—stir up a sentiment for clay products and boost your own game. That is what the concrete man is doing.

Circularize the farmers and those who should make up a local demand sufficient to keep your yard running full time. Such valuable aids as "The Life of Portland Cement" will be supplied you at low cost and printed matter of this kind will do much to offset the advertising of the concrete-block maker.

Tell your neighbors what you make, and why it is better than the material they have, as you say, been paying a higher price for, than the price you would be willing to take for your brick.

No one else is talking about "laying down." No one else is talking about clayworking being a "losing game." Grit your teeth, set your goal and fight your way to it.

Another Despondent Clayworker.

From down in Louisiana comes another wail. This one is from the Godchaux Brick Co., Ltd., of Abbeville, La. Why, oh why do clayworkers—some clayworkers—get discouraged so easily? Read and reflect, fellow burners of clay, for there is a moral herein:

The year 1912 was a fairly good year for us, 1913 showed our sales to be exactly one-half of 1912, and prospects for 1914 are not encouraging, consequently we have dispensed with the services of our yard manager and have reduced all possible expenses and your journal was discontinued for the reason that we have "no one to read it."

We are carrying over from last season several hundred thousands of finished brick. This will be sufficient for 1914.

We expect that 1915 will open up brighter and then we expect to resume operations, and will be glad to subscribe to your "Brick & Clay Record." We are located in a territory where the principal crops are rice and sugar cane. Tariff put the cane culture to the bad, the rice farmers suffered serious loss from heavy rains during the harvesting season, and these, coupled with the tightness of the money market, have forced us to close down and wait for better times.

The only encouraging line in the entire letter is: "We expect that 1915 will open up brighter." What about 1914? Hope—hope, it is the one salvation. We are glad to see our Louisiana friend hopeful for a year hence, at least.

Wants Literature for Ammunition.

The Canton Title Hollow Brick Co., of New Bethlehem, Clarion Co., Pa., has a battle on with concrete. Secretary Ira E. Lower, writes:

Do you have any advertising matter that would be suitable for us to use in making a fight against concrete and especially cement hollow blocks? We here enclose you a stamped envelope for reply and if you have anything in this line quote us prices and send us a sample.

At the present time we have a customer, McElroy & Emerson of Corry, Pa., who contemplate building a building 48 ft. by 96 ft., two stories high, for a customer who is figuring on tile or cement blocks, but we believe that we can induce him to use our hollow building block in preference to the cement block. If you have anything in this line of advertising we would be pleased if you would mail them a copy direct.

The only pamphlet which we have at the present time on concrete is the one entitled "The Life of Portland Cement." We have others under course of preparation, but it will be some time before they are off the press. This pamphlet, of which we enclose a copy, is sold at the following prices: Lots of 100, $4; lots of 300, $12; lots of 500, $17.50; lots of 1000, $30.

These booklets have been used with a great deal of success all through the country by clayworkers in abating the cement evil and we believe that you will find them equally successful in your own territory.

We are also sending a copy of this pamphlet to McElroy & Emerson, Corry, Pa., as per your request.

We will be glad to hear from you as to the result of this campaign on your part and trust that you will not forget to write us.

Pioneer Brick Dealers.

F. B. Holmes & Co., of Detroit, manufacturers and dealers in face-brick and other clay products, write:

Possibly you might be interested in knowing that we were the first people to take up the exclusive selling of face building brick in the West. This was in 1889, and at that time there were only three manufacturers of face-brick in the State of Ohio, all of whom are now out of business. Since that time we have handled a share of the output of the largest and most prominent manufacturers in the West, and are no doubt handling more face-brick throughout Northern Ohio, Michigan and some parts of Canada than any other dealer in this section of the country.

Some Recent Bouquets.

We will be pardoned, we know, if we print some of the nice things said about us occasionally. We do not often let our bump of self-esteem intrude thus.

Enclosed please find check for $5.50 for the ⅛ page ad. in Jan. 6 issue and for copy of "One Hundred Bungalows." I think the issue is quite a success and wish you many such for the coming year.—H. M. Baldridge, Illiopolis, Ill.

Enclosed please find check for $2 for "Brick and Clay Record" for the year 1914. The writer considers your paper as necessary on the yard as good clay, sand, coal, wood, etc.—Robert A. Parry, Boston Brick Co., Boston, Mass.

I am enclosing my check for subscription to "Brick and Clay Record," for another year. I wish to say that I get much valuable information from reading your magazine and consider it one of the best in its line.—J. E. Minter, The R. B. Small Co., Columbus, Ga.

Calls Foreign Postage Tax Unjust.

Enclosed find check for $3.10 for payment for my subscription to "Brick and Clay Record" for 1914, which also entitles me to your premium book, "How to Analyze Clay." I think you are making the journal better every year and I like it best of all that I receive. It is not fair, however, for our government to charge extra postage on technical journals. We must have some foreign papers in order to keep posted in our business.—W. H. Wood, 220 Park St., Brockville, Ontario, Can.

Want Brick for Florida.

332. We would like to have the names of manufacturers of brick whose plants are on the Atlantic coast and who can make water shipments to the west coast of Florida, in competition with Southern brick manufacturers.—Bean & Jones Contracting Company, Benton Harbor, Mich.

With the Clay Plants

A Department Wherein is Set Forth Factories Erected or Contemplated, Recent Incorporations, Improvements and Enlargements, and Any New Ideas That May Be of Benefit to Others

ONE of the best and most progressive clayworking plants west of the Mississippi River is that of the G. M. Boyd Brick & Tile Co., at Knob Noster, Mo. It was organized with a capital stock of $175,000 and has a modern equipment throughout for the manufacture of dry-press and stiff-mud repress and wire-cut brick, vitrified paving brick and tile.

The plant has a daily capacity of 75,000 and it distributes its product over a wide territory. An excellent selling organization is maintained and aggressive as well as progressive methods are employed to market the line of ware.

A stiff mud machine—an American—with 75,000 daily capacity, a Ross-Keller six-mold dry-process, two dry-pans and the necessary equipment to work these machines efficiently were installed within the past year.

The dryer is a Raymond and there are eight down-draft kilns. One 125 h. p. engine and two 80 h. p. boilers furnish the power.

G. W. Boyd is the president of the company and Thomas Boyd secretary.

Natural Gas Used in Texas.

Natural gas has now been installed in nearly all of the industrial plants at Teague, Tex., supplanting coal and wood. The Trinity and Brazos Valley Railroad, which has its main shops at that place, is now installing gas burning apparatus in every department of its large plant. The Business Men's League is working to secure a good brick plant, holding out the inducement of gas for fuel at 5c per 1,000 cu. ft. It is claimed that good shale and fire-clay are in abundance at points close by the town site.

Lignite Will Solve North Dakota's Building Problem.

The successful outcome of the experiments that have been made with lignite in North Dakota point a way to cheaper brick production, which, in a short time, means the elimination of frame buildings. At the present time, 95 per cent of the building that is done in that State is wood—this in the face of the fact that not one foot of lumber is produced there.

Brick has been expensive and the number of brick buildings has, as a consequence, been very small. At the same time, the increasing cost of lumber and the high-flying insurance rates have made the builders look with some anxiety to the producers of more permanent material. The field is a rich one, not only for the brick-maker, but for the architect and builder who understand the use of the "best of all building materials."

Express Companies Make Big Reductions.

Manufacturers of clay products and others who have occasion to make shipments that require a quicker delivery than that afforded by "local freight" will welcome the reduction that has been made in express rates. The various express companies operating in Chicago, not content with making out a new tariff sheet that includes all of the principal cities in each Parcel Post zone of the country, demonstrate that the express rate is cheaper than the Parcel Post rate, if the insurance of the property shipped is taken into consideration.

It is but fair to assume that similar tariff sheets will be made out and distributed in all principal cities, and, while the rate is higher, in many instances, than Parcel Post rate (when uninsured), due consideration must be given to the fact that the express companies have a collection service, calling for the packages as well as delivering them—whereas the Parcel Post rate includes the carrying and delivery charge only.

NEWS IN BRIEF.

A peculiar, and death-dealing accident occurred January 16 at the plant of the Mars Brick & Tile Co., at Mars, Pa., when a new kiln, which had been on fire four days, burst the upper kiln bands, causing the fall of the upper part of the walls and the collapse of the crown. Four men who had sought the kiln

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CONTINUOUS KILN EXPERT, DESIGNER—BUILDER
Kilns speeded up and arranged to burn bricks their natural color.
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PULSOMETERS
Cost less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication.
Write today for our "Pulsometer Handbook." It shows many novel installations and contains valuable data on pumping problems.
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Chicago Office: 223-231 North Jefferson Street

WANT A SITUATION?
There is the right place for the right sort of a man somewhere. The problem is to get the two together. Our Classified Ad pages bring them in touch with each other.

heat as a relief from the inclemency of the weather, were caught by the bands, as they fell, and were covered with the scorching brick. Two of them died shortly after, and the others are so severely burned that little hope for their recovery is held out by the hospital authorities.

Good Reports from Wabash Clay Company.

Since taking charge of the affairs of the Wabash Clay Company, Veedersburg, Ind., as receiver, Robert J. Martindale, asserts that he never knew a concern that was better organized or whose books were in better condition. He says the finances of the company are not at all in bad shape, and that the reason for the receivership was simply to effect a reorganization among the stockholders. Following the receivership, stories were rife that the plant would be dismantled, that the shale deposits were exhausted, and the company unable to make profits. The shale deposit is exhausted, but another bank was tapped at Coal Creek and about $30,000 expended upon equipment to get the clay to the plant, a railway track and a steel bridge being necessary. This deposit proved disappointing in that it was expensive to strip the soil away to get at it, but it is said that a new deposit will be opened in the Summer and that only an extension of the switch at comparatively slight expense will be necessary. The plant has been controlled for several years by Adolphus Lemp, the St. Louis brewer. When he died there was a disagreement among his four sons as to how the stock should be divided. This disagreement is said to be the direct cause of the receivership as the first essential move toward reorganization. The concern is to be sold at a receiver's sale and it is said that the two Lemp brothers who are interested in the business, and a Cleveland stockholder, are planning to buy it in and reopen the plant in the Spring.

James C. Rossi Dead.

James C. Rossi, general superintendent of the brick plants in New Jersey and other states that form the National Fireproofing Company, and a man whose energies and capabilities have to a great extent brought about the rapid growth of the clay manufacturing industry in Perth Amboy, N. J., died at his home in Perth Amboy, January 21, following an attack of pneumonia. Mr. Rossi is survived by his wife, three sons and one daughter.

He had reached the venerable age of three-score years and ten and would have been seventy-one next October. He was born in Paris, France, October 2, 1843, and immigrated to this country with his father, Dr. Cammille Rossi, his mother, his sister and two brothers. In 1874 Mr. Rossi married Miss Caroline A. Frame, of New York City, and located in Flushing, L. I., at which place he had charge of the many important engineering accomplishments. After residing in Flushing for eighteen years he moved to Perth Amboy, where he established a brick fireproofing factory and was superintendent of the plant. He erected the Raritan Hollow & Porous Brick Company's factory, of which he was the proprietor. He conducted this plant for some years at Keasbey, until it was sold to the National Fireproofing Company, when he became general superintendent of their nine plants both in the county and elsewhere. The plant he erected is known as the Raritan plant of the National Fireproofing Company, and was one of the original brick factories in the vicinity of Perth Amboy.

Underwood Burning System in Book Form.

A brief, but pithy description of the Underwood System of Burning Producer Gas has been issued by the Manufactures Equipment Company, of Dayton, Ohio. It has two illustrations, one showing the simplicity of the system as applied to updraft kilns and the other, the slight changes necessary to apply it to down draft kilns. The booklet shows that the expense of equipping old kilns with this new system is very slight, compared to the cost of installing other burning systems, and impresses upon its readers the advisability of getting out of the rut of old burning methods. The Underwood system can be applied to any type of kiln—old kilns that have stood for years—or new kilns that are in course of erection. It points out the many places in which economies may be effected, among these being the concentration of the coal supply, which is used at one point in the plant only, instead of being wheeled about to a dozen different places, with a consequent waste of labor, time and the fuel itself. The elimination of furnace doors, grate bars, the relining of furnaces and of the labor of cleaning furnaces after each burn is also touched upon. Every clayworker, whether he is ready to abandon his present burning methods now, or ever, should have one of these little books, which will be sent him for the trouble of writing for a copy.

Light Weight Fire Brick an Innovation.

The Livermore (Cal.) Fire Brick Company has been conducting a series of experiments with a new kind of fire brick, and, if the demand for the new product is as great as appearances would indicate, a prosperous future is in store for the Livermore concern. The object of the experiments has been the production of a fire brick that is light in weight and still so refractory that it can be used for insulation and for fire boxes that are suspended, or otherwise situated so as to demand a minimum weight. A full size, nine-inch brick, weighing but fourteen ounces, has been produced, and has been submitted to tests that assure the manufacturers that it will stand the highest temperatures to which fire brick are subjected, without crumbling or losing shape.

American Brick & Tile Co. Resumes.

The American Brick & Tile Company which changed hands a few months ago and is now owned by Mortimer Miller, of Indianapolis, Ind., will resume operations March 1st. The new firm has been busy with a large force of men for the last 60 days installing an up-to-date drying system and also new clay-working machinery. The new company will manufacture a full line of standard building block, corrugated wall and partition tile and all sizes of porous drain tile. The company has already booked orders for a large part of its production in the hollow ware. Twenty acres of additional clay lands have recently been purchased and with the improved facilities it is now in position to run throughout the year. This plant is now the largest in Southern Michigan.

Ohio Graduate Joins Schaffer Forces.

The latest addition to the Schaffer Engineering & Equipment Company's forces is a graduate of the Ohio State University as well as of the Heidelberg University of Tiffin, Ohio. His name is Karl J. Heilman, and he comes naturally by his clay-working education, for his father before him made good brick out of doubtful clay. Among other achievements of the younger Heilman was the designing and installation of a 125,000 daily capacity brick plant at Calgary, Alta., setting the plant in operation and training the men. He also remodeled a combination dry-press and stiff-mud outfit at the same place, putting it on an efficiency basis. At both places he had to overcome not only drying, but burning problems, and proved his mettle by successfully solving these vexing questions. The Schaffer Company is to be congratulated upon Mr. Heilman's connection with them, and the clayworking trade upon his broadened opportunities for giving it the benefit of his practical as well as theoretical experience.

Woodland Clay Company Troubles.

The internal dissension which is rife in the councils of the Woodland (Ill.) Clay Company is making the affairs of that concern the "talk of the town" of Woodland and Watseka. Charges of unfair methods on the part of some of the stockholders are being met with similar charges, made against those that made the earlier statements, and a tangle has resulted that will probably have to be adjusted by the courts. It is regrettable that this has occurred, for the Woodland Clay Company is solvent—enjoys a good trade—and has every reason to hope for a prosperous year. The books of the company show an excellent financial condition and the order books indicate that good salesmanship has been brought into play for some time. There is still a chance, it is said, that the warring factions may see the folly of wrecking a going concern, on the "rule or ruin" principle.

Ohio Ceramic Changes Name.

At the annual meeting of the stockholders of the Ohio Ceramic Engineering Company, of Cleveland, resolutions were adopted changing the corporate name to "The Lakewood Engineering Company." For several years past this company has applied the trade name "Lakewood Line" to all its products, consisting of brick dryer cars, rack cars, clay cars, contractors' equipment, buckets, etc., and also industrial cars and factory trucks of all kinds. The company has been in business about 17 years. The old board of directors and officers, consisting of Frank H. Robinson, president; Charles F. Lang, vice-president and general manager; A. W. Stone, secretary; Hon. James J. Cassidy and Robert Kline, were re-elected. D. L. Wadsworth is sales manager and Henry T. Pleines superintendent.

Pyrometer Facts.

The Stupakoff Laboratories, of Pittsburgh, Pa., has issued an attractively printed brochure that tells in an interesting way, much that should be, but which is not generally known, about pyrometers. This booklet is in no sense of the word a catalog, but rather, a dissertation on instruments for the measurement of high temperatures. It is written in a way that is simple enough for the layman, yet sufficiently technical to hold the attention of the scientific reader. The Stupakoff Laboratories will send a copy on receipt of a request.

Items of Interest.

The Mount Clemens (Mich.) Pottery Company is at last a permanent institution, the by-laws having been accepted by a meeting of the stockholders recently held. These by-laws call for a capital stock of $150,000, of which $40,000 is preferred, and the balance common stock. The company's main office will be in Mount Clemens. A Board of Directors, consisting of J. S. Paganetti, F. Schott, William F. Nank, Charles Ferrin, A. T. Donaldson, R. C. Ulrich, E. T. Nunelly and S. J. Dalby, was elected.

What is claimed to be one of the best shale deposits west of the Mississippi river, is owned by the Basin (Wyo.) Brick & Tile Co., of which George H. Sheridan is manager. With the large amount of drainage work that is planned for that part of Wyoming, and the large amount of brick that will be required for various industrial enterprises now planning, the Basin company expects to run full time all year.

At a meeting of the stockholders of the Valley City (N. D.) Brick & Tile Company, recently held, the following officers were elected: K. S. Ramseth, president; George Goulett, vice-president; M. J. Boyd, secretary-treasurer; S. L. Davidson, manager. Active construction work on the plant has been stopped on account of bad weather; the steel work is all in, and the brickwork will be started as soon as weather conditions are more favorable.

The Detroit, Mich., Council Committee on Streets has approved the brick specifications of Commissioner Fenkell. It is said that the plan is to have a brick expert go to the various factories from which the Department of Public Works will purchase brick for the coming year, and make a preliminary test

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at the point where the brick are made. This plan the Council Committee also approved. In laying brick during the coming year, the commissioner expects to effect a considerable saving of money by using a one-inch layer of sand under the brick in place of two inches as has been the custom in former years.

A. Reiche, formerly general manager of the Orenstein-Arthur Koppel Co., plant and general offices, Koppel, Pa., sailed for Germany, Jan. 14 on the Lusitania and has been succeeded by Erich Joseph, formerly New York manager of that company. Mr. Reiche has served for many years in the above capacity. Mr. Reiche has severed connections with the Koppel firm to assume the position of managing director of a large German concern, manufacturers of locomobiles and agricultural machinery. His successor, Mr. Joseph, also has been connected with the Orenstein-Arthur Koppel Co. for a great many years.

The Holland House, a well known New York city hostelry, was the first building in that city in which hollow clay blocks were supplied by the National Fireproofing Co. A fire which occurred in the hotel during the early part of January, while of sufficient proportions to require a call for fire-fighting apparatus, caused little damage, the doors of the apartment in which the flames were having been closed. Officials of the New York Fire Department are quoted as saying that this is one of the best practical tests of the value of clay hollow block that has even been offered.

The Flint Brick Company, the Barber Asphalt Company and the Shackelford Brick Company, all of Des Moines, Iowa, have secured the contracts that call for the furnishing of all the brick that will be used for the platforms, freight house floorings and stock pen floorings along the entire Pacific Coast extension of the Milwaukee lines, from the Missouri river at Mobridge, to the Pacific Ocean. More than 800 carloads of paving brick will be used in this work.

The Harbison-Walker Refractories Company, of Pittsburgh, Pa., has in view the building of a fire-brick plant at Strasburg, Ohio, where a number of buildings will be erected at a cost of $150,000. The main building will be 45x250 feet with a wing 45x90 feet, a three-story building 45x45 feet and several other smaller buildings.

At the annual meeting of the Lexington Paving Brick Company, held at Galesburg, Ill., January 21, the following officers were elected: F. G. Mattheson, president; C. D. B. Howell, vice-president; W. H. Terwilliger, secretary and W. G. O. Orr, general manager. Reports showed that the company had enjoyed a most successful year and that promises for 1914 were very reassuring.

Directors of the Scioto Fire Brick Company met in the law offices of Holcomb & Millar, at Portsmouth, Ohio, and elected C. W. Turner as president; Samuel Reed, secretary. Other directors elected are S. M. Johnson and A. T. Holcomb. The company is doing a good business and the outlook for a steady Summer run is bright.

A continuous paved road, from Beaver Falls, Pa., to Canton, Ohio, is a project that has been launched by prominent business men of Columbiana, Mahoning and Stark counties, in Ohio. A mass meeting was recently held in Columbiana, Ohio, where preliminary plans were made to push the work to completion.

The Lawrenceburg, (Tenn.) Pressed Brick Company has elected the following officers: Joseph B. Schade, president; Swen Ellingson, vice-president; William Boulle, general manager; Henry Schade, secretary-treasurer. The annual report showed a good year's business and a promising outlook.

W. H. Batley, who has been superintendent of the Coffeyville Vitrified Brick & Tile Co. plant at Collinsville, Okla., for the past year, has returned to the Standard Vitrified Brick Co. at Coffeyville, Kans., as superintendent, where for four years he occupied a similar position.

G. W. Conklin, who purchased the old Huston brick yards at Mena, Ark., has practically completed the organization of the plant and will be in a position to begin brickmaking in the Spring. The old, 60 h. p. engine will be replaced by a 200 h. p. Corliss and other up-to-date machinery will be installed.

Paul D. Sargent, M. Am. Soc. C. E., Chief Engineer, State Highway Commission, Augusta, Me., delivered an illustrated lecture on "Gravel and Its Use in Highway Construction," before the graduate students in highway engineering at Columbia University, January 20.

The sale of the properties of the Sibley-Menge Brick Company, of Birmingham, Ala., took place January 16. The purchaser was W. C. O'Ferrall and the purchase price, which included the bonded indebtedness and secured claims, was estimated at $175,000.

Modern brickmaking methods are being adopted by Pacific coast plants The San Luis Brick Company, of San Luis Obispo, Cal., is installing a system similar to the Penfield, whereby 500 green brick are handled at one time, by chain hoist and traveling crane.

The Hanover Brick Co., of Whippany, N. J., is contemplating equipping its works with electrically operated machinery. The company has contracted with the Morris & Somerset Electric Co., of Morristown, for electricity to operate its plant.

It is reported in Indianapolis that Frank Woods, manager of the Wabash Clay Company, Brazil, Ind., which recently went into the hands of a receiver, is now with the Danville Paving Brick Company.

The stockholders of the Saginaw Paving Brick Company of Saginaw, Mich., met Jan. 22 and elected the following officers: President and general manager, John H. Qualman; vice-president, Rudolph Otto; secretary-treasurer, James H. Sleeth.

The Western Brick Company secured the order for the hollow block to be used in the Fletcher Trust and Savings Bank building and expects to begin delivery March 1. This will be a

16 story structure and will require upwards of 200,000 pieces of building tile. This is a new line, which the Danville plant has recently added.

A business man in a European country informs an American consular officer that he desires to import brick-making machinery and appliances used in connection with brick making. He is anxious to make these purchases in the United States, and would like to hear from American manufacturers of such equipment. For additional information refer to File number 12253 and address Bureau of Foreign and Domestic Commerce, Washington, D. C.

The J. M. Leach Mfg. Co., Inc., of Kokomo, Ind., has taken over the entire manufacturing business of J. M Leach and will conduct the business at the same location as that occupied for the past 46 years, with general offices at 117 West Mulberry St. Mr. Leach, who has been continuously engaged in the brick and ice business since 1867, is president and general manager of the company, H. H. Leach, vice-president and M. A. Brown secretary-treasurer.

James E. Rector, of Asheville, N. C., is interested in burning systems, kilns and drying systems, for a plant of approximately 25,000 brick capacity. He seeks information on cables and cableways, clay gatherers, industrial railway equipment and on tramways. At a later date, he proposes to do something with sewer-pipe and drain-tile, and wants information relative to machinery for making these products.

The Bippus Drain Tile Company, Bippus, Ind., is now in the hands of a receiver, the Huntington Trust Company, Huntington, being appointed. Six stockholders asked for a receiver. The plant burned down in 1906 but was later rebuilt. Last summer, however, it was badly damaged by storms. Its operation will be continued and the plant sold. It is said to be a good property for a practical tile man.

Warnock & Finnessy, with offices in the Oliver building, Pittsburg, have taken the agency for the sale of the Eureka Fire Brick Company of Mt. Braddock, Pa. The company makes a specialty of coke-oven brick and special shapes. The same firm also has the agency of the Mt. Savage (Md.) Fire Brick Company, makers of high-grade fire brick for furnace construction.

At the last meeting of the Indiana Brick Club, the members all brought facts and figures about stocks on hand and agreed among themselves that there was nothing on hand that appeared like an overstock. If February is as mild as January has been nearly all the plants will have to start manufacturing earlier than usual.

The Federal Terra Cotta Company of Woodbridge, N. J., has announced a reduction in wages of its employees of from 10 to 40 per cent. The employees argue that as the company has the contract for the terra-cotta work in the new Equitable building in New York city, and other large contracts, the reduction is uncalled for.

The Adams Brick Company, Martinsville, is to dry its brick by radiation after Feb. 15, which is the approximate date given for resuming operations. The cost of the change from steam to hot air will cost in the neighborhood of $2,000. The Adams company expects to add pavers and face-brick to its line for 1914.

The Phoenix Ceramic Company of Metuchen, N. J., has placed its employees on piece-work instead of the old system of straight wages. There is a great dissatisfaction among the workmen, who say they cannot make as much as under the wage system.

At the Brooklyn (Ind.) Brick Company plant, some changes and improvements are being made. The company, it is likely, will install electricity, getting power from the traction line. Part of the plant is motor driven now, and the steam plant is not as economical as the management feels it should be.

Two new boilers are being put in the Dee Clay Manufacturing Company plant, at Newport, Ind. It is shut down for change. The Dee Company's two plants at Mecca, Ind., also are closed down. Some money is being spent there for repairs and new equipment.

Machinery is being delivered at the plant site of the new brick and tile company that will operate at Forest City, N. C. C. C. Whitaker is manager and expects to be producing brick and tile within four months.

City Clerk Thorne of Battle Creek, Mich., will shortly advertise for bids for 200,000 square yards, more or less, of brick to be used in paving local streets during the coming year.

The Oxford Pottery Company, of Cambridge, Ohio, has been incorporated with a capital stock of $50,000. The incorporators are T. M. Bond, Harry W. Dennis and C. F. Gross.

The Mayer China Company of Beaver Falls, Pa., is erecting two additional kilns. This company manufactures vitreous china, hotel and dinner ware.

A report from Redcliffe, Alta., states that prices on common brick are close to $8.00 per M, while No. 1 face-brick are being sold at $20 at yard.

Twenty-four manufacturers of various clay products enrolled for the "short course" in ceramics at the University of Illinois, at Urbana, Ill.

The Barnum (Minn.) Brick Company has begun to manufacture floor tile, having installed a repress and other equipment.

James Condon is building a new kiln at his drain tile plant in Joliet, Ill., to replace the one that was destroyed last Summer.

The Hydraulic Press Brick Company, Brazil, Ind., is making extensive power plant changes and improvements.

President A. J. Jungerman, of the Hydraulic Brick Company, announced recently that the Lockland, Ky., plant of the com-

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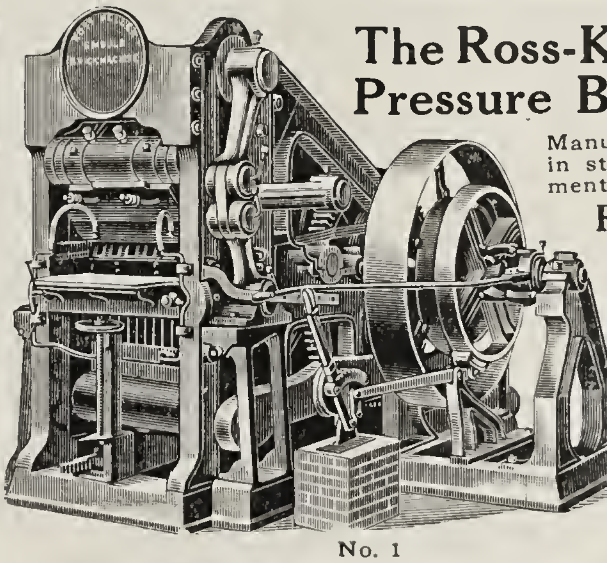

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pany has been sold to John Rommel, of the automobile firm of Rommel Brothers, who will place the plant in shape and start it in operation shortly. The Twelfth-street plant of the company is also for sale, and is in such condition now that it could be started up again with little difficulty. Mr. Jungerman stated, however, that the company will probably not operate the plant again.

Owners of the Kenilworth Brick Company and the Globe Brick works, at Kenilworth, W. Va., announce that the former plant will at once be augmented to double its present capacity. The improvement is the one finally decided upon, and is the result of the destruction by fire on Christmas Day of the Globe plant, located two miles north of New Cumberland. The Kenilworth brick yard is one mile below Newell, W. Va., and is controlled by the Porter interests. On account of the unsatisfactory clay conditions at the more remote location, it was deemed expedient by the owners not to rebuild there.

The mid-winter lull is now being experienced in many of the sewer pipe manufacturing plants in the Ohio, Pennsylvania and West Virginia territories, and while operations are continuing in some of the plants, shipments are admitted to be at a low ebb. Stocks, however, are being increased, with a view of being in a position to make immediate shipments when the rush comes on with the opening of Spring.

The Broughton Brick & Tile Company, of Broughton, Ill., wants information, catalogues and prices on kilns, kiln doors, frames, lugs and bands, and on pyrometers. A letter recently received at this office states that the Broughton Brick & Tile Company is completing one of the most up-to-date plants for the manufacture of common brick and drain tile, in southern Illinois.

A corporation in a European capital desires to import brickmaking machinery, appliances, and tools, and wishes to correspond with American manufacturers, especially those making equipment designed for use with natural gas as fuel. For additional information, refer to File number 12273 and address Bureau of Foreign and Domestic Commerce, Washington, D. C.

William H. Connell, Assoc. M. Am. Soc. C. E., Chief of Bureau of Highways and Street Cleaning, Philadelphia, Pa., delivered an illustrated lecture on "Organization and Methods of Street Cleaning Departments" before the graduate students in highway engineering at Columbia University, in New York city, January 15.

Western Resources, Ltd., Box 668, Moose Jaw, Saskatchewan, Canada, wants catalogues and other information relative to a full equipment of brickmaking machinery, as well as for the manufacture of briquettes made from lignite coal. This concern also wants to have clay analyzed.

The National Tile Company plant at Anderson, Ind., was not closed for inventory this year, the first time in its existence, the amount of business on the books making it impossible to shut down. The company anticipates the biggest year in its history.

A fire at the Globe Brick Company's plant, at New Cumberland, west of Kenilworth, W. Va., caused a loss that is estimated at $10,000. The plant is owned by Capt. John N. Porter and his two sons, the offices being in Pittsburgh, Pa.

James H. Dyett, of the Dyett Engineering & Manufacturing Company, of New Orleans, La., has announced his intention to start a sand-lime brick plant on the New Basin, the sand to be obtained from the Tchefuncta river.

The Crawford-Herrold Brick Company, of Fresno, Cal., has taken an option on a large deposit of shale rock in the Solis district, eight miles from Gilroy. The company proposes to establish a pottery at the site, if certain concessions can be

Arthur G. Bradley, of 9 Richmond St., St. Catherines, Ontario, Canada, wants names and addresses of manufacturers of small, hand power stiff-mud machines for experimental purposes.

The roofing tile plant at Ludowici, Ga., which was recently closed down, is to be started up again shortly, Mr. H. B. Skeel, of Savannah, Ga., being in charge.

The Burley & Winter Pottery Company, of New Zanesville, Ohio, has decided to make improvements at its No. 2 plant that will double the output.

The Chicago Fire Brick Company has decided to build a $50,000 fire brick plant at Fulton, Mo. The address of this concern is 133 West Washington St., Chicago, Ill.

The Ford Brick & Tile Company, of Harrisburg, Ill., wants prices on clay feeders and mixers, dry-pans and wet-pans, screens and tile-making machinery.

Harry R. Rapp, of Egg Harbor, N. J., is in the market for a hand power dry-press for bricks and asks for catalogues and prices on flower pot machines.

The Finzer Bros. Clay Company, of Sugar Creek, Ohio, has patented a new silo block.

Charles McHose is building a drain tile factory at Maxwell, Iowa.

Trade Reviews

New York.

The best proof that the optimistic sentiment everywhere expressed at the first of January to the effect that 1914 would prove to be a good construction year was not merely visionary, is found in the fact that the first fifteen days in January developed a lead over a corresponding period in 1913 of $1,656,209 in four of the leading boroughs of the city and that the metropolitan district outside of New York, proper, developed a gain of approximately half a million dollars. Compared with recent years, the start is better than that of any since that of 1909.

Of course, such a gain in building activity will have its effect upon brick, but this is only prospective so far. It must be remembered that building statistics are all based upon building plans filed, rather than on permits granted for actual construction work. The only exceptions to this rule are the quarterly and annual reports of the Bureaus of Buildings, which are based upon permits issued and do not include building operations that are merely planned, but fail to go ahead. The foregoing statistics, therefore, merely point the way to future clay products demand in the New York market.

Just at present the New York brick market is in a weak condition. The city is full of brick, but with few takers even at the low prices of $6.00 to $6.50 prevailing. The short, but extreme, cold snap that prevailed here around the middle of the month failed to close the river permanently and there has not been a day that more brick has not arrived. This unusual supply has relieved all anxiety as to the danger of a shortage of common brick in this market and should result in better demand, since contractors will not be forced to use concrete through fear of a sudden rise in brick prices.

Another occurrence of importance in the brick market during the last fortnight has been the promulgation, by the New York Fire Insurance Exchange, of a higher standard of mill construction. This will mean that owners in putting up factory buildings in the future will be encouraged to use more fireproof material than before, in order to enjoy the "Class A" rates that will hereafter be withdrawn from buildings of half a dozen different construction standards and applied only to those putting up fireproof buildings of the type prescribed by the Insurance Exchange.

The first item, referring to walls, puts brick standards up to those described in the New York building code. Since this code was approved a decade ago, standards of brick and concrete wall construction have become higher, and the use of structural steel has become more general. The result is that even in many factory buildings the walls are merely fire curtains, especially in the congested portions of Bronx, Brooklyn and Manhattan. The attempts to amend the building code have proved futile so long because of the pressure brought to bear by manufacturers of rival fireproofing materials to gain a preference over common brick. As a result, the Herbst draught of the new building code was killed, largely through the efforts of Senator John B. Rose and other influential brick men. Now that assurances are good for reviving the code and to have it enacted into law early this year with suitable amendments, common brick doubtless will return to its proper relationship to safe building construction since the code will be in the hands of friends of common brick to a greater extent, at least, than has been the case in past administrations.

If a code proportionately favorable to brick and other so-called fireproof building materials can be enacted this year, the meaning of the short, sharp and concise paragraph at the top of the following "Standard of Mill Construction" as propounded by the New York Fire Insurance Exchange will have much more weight than it has under the code now in operation:

"Walls.—Brick or reinforced concrete built in accordance with the requirements of the Building Department of the City of New York.

"Floor Openings.—All floor opening shafts to be of standard construction and not less than 6 inches in thickness, of hollow terra-cotta or reinforced concrete or 8-inch brick, and to be independent of floor construction. Openings to lofts to be protected in a standard manner. This includes stairways, elevators, vent-shafts, power-shafts, light-wells, chutes, dumb waiters, etc., etc.

"In connection with the foregoing the rate committee has promulgated the following rules:

"In unsprinklered buildings or buildings containing sprinkler equipments grading below 40 per cent, no allowance will be made because of slow burning or mill construction unless the foregoing standards are fully complied with:

"In buildings containing sprinkler equipments grading 40 per cent or over, the following modification of or departures from standard requirements may occur without affecting allowance for superior construction, viz.: Floor opening protection may be reduced from 6 inches to 4 inches in thickness when of hollow terra-cotta, reinforced concrete or brick about stairways, elevators, vent-shafts, power-shafts and light-shafts and 2 inches about chutes and dumb waiters; the latter may be of expanded metal and cement.

"In rating both sprinklered and unsprinklered risks conforming to the respective requirements set forth above, an allowance of 25 per cent off of the gross contents rate shall be made in computing net contents rate. Building rate shall be taken at 50 per cent of net contents rate when the building is rated from any other than a starred or high susceptibility basis, but when rated from a starred or high susceptibility basis building rate is to be figured as per regular rule governing risks rated from such a basis and gross building rate so figured shall be reduced 45 per cent for superior (brick) construction."

The rate committee further rules that the foregoing standards and methods of rating shall be forthwith applied to all buildings of the classes eligible, and all superior construction allowances withdrawn from buildings not eligible.

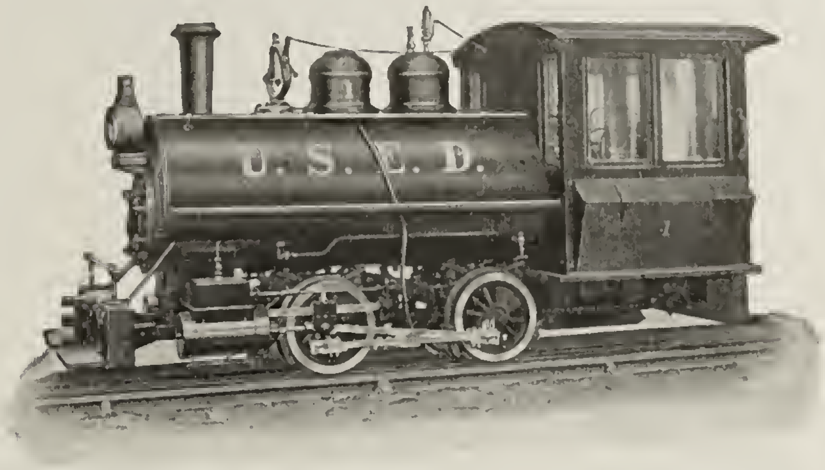
And thus does the Back to Brick Movement move merrily along.

According to present indications, there probably will not be an early resumption of brickmaking along the Hudson river, unless, of course, the present aggressive tendencies of building movement develop into something that the brick manufacturers do not now look for. There is still some 450,000,000 brick available for this market, exclusive of the amount already here, eating up wharf charges. But manufacturers are prepared for emergencies and should one arise they will be in a position to more than take care of all the brick demand that

CLAY HAULAGE

Reduce costs of transportation by using a

Davenport Industrial Locomotive



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Pittsburgh: 405 Oliver Bldg.
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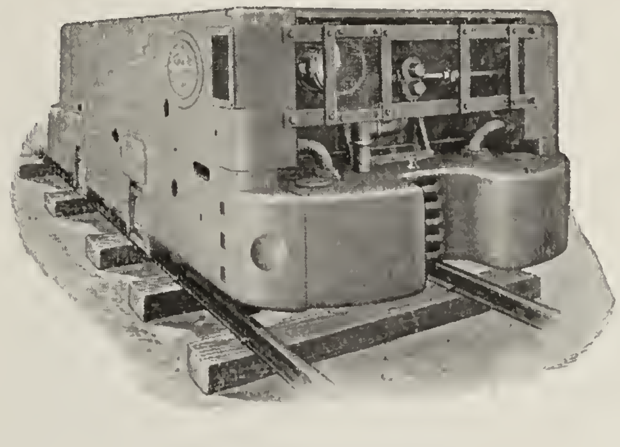

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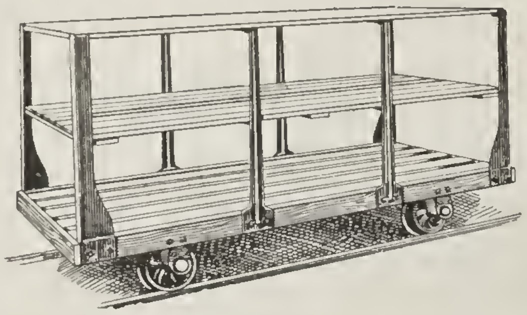

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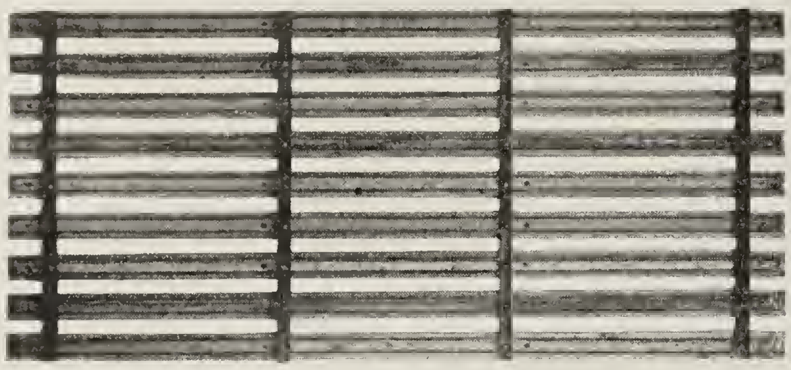

Also grey iron castings for all kinds of brick and tile machinery.

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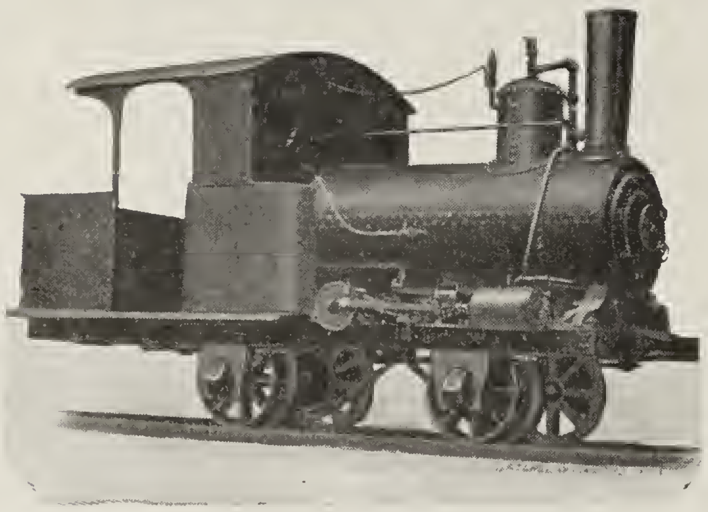

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Horses and Mules may cost less at first, ***but the upkeep is greater and the volume of work less.***

Write us and give us an opportunity of showing you where economy begins.

DEWEY BROTHERS, Goldsboro, N. C.

DEWEY

New York can develop, between now and the opening of the brickmaking season.

As far as the building outlook is concerned, Eastern mill men are looking with some degree of interest at the effect that the new tariff bill will have upon the demand for office and warehouse space in and around New York. If even a small percentage of the foreign business interests that are contemplating seeking a foothold in this market sent emmissaries to this country, it has been estimated that there will be at least 700 applications for office space. As most of these concerns will also require show-rooms and warehouse accommodations, the real estate interests of New York, Newark and surrounding towns are looking forward to a speedy assimilation of rentable space. If New York does have an active renting and leasing season and money continues to show signs of easing, as it has during the past three weeks in January, there is no reason why 1914 should not go down in history as one of the biggest clay products producing years in the memory of Eastern manufacturers.

Kansas City, Mo.

With 1914 actually started, and 1913 a thing of the past, brick men of Kansas City are laying plans for a brisk business during the coming year. Nevertheless, those engaged in the various branches of the brick and clay industry are casting glances at the old year, and as far as possible endeavoring to profit from their experiences. Some pointed morals may be drawn from the vicissitudes of 1913, which, nevertheless, was not as black as it has been painted in some quarters.

Whatever else the old year may have been, it certainly provided little in the way of monotony for members of the brick and clay trade, according to the Kansas City contingent. One thing after another cropped up, and the twelve months was a veritable procession of surprises. The year was not absolutely the best on record for all concerned; neither was it the worst. The consensus of opinion is that everything considered, the period was a very fair one. In some cases, the volume of business done ran well ahead of that of 1912 and few indeed are the brick men who fell far below the old marks. While gains were usually accomplished only at the expenditure of much energy and brain power, brick men have grown accustomed to strenuous work and did not complain over this development. They are interested, however, in the new building code proposed for Kansas City. As yet, the new measure is in an embryonic state, but will probably be whipped into better condition early in February. Demand for hollow tile and other clay products was depressed temporarily during the past year by the fire insurance troubles. As a result of rulings by the State Insurance Department, all of the fire companies whose home offices were not located in Missouri withdrew from the State and suspended all policies. This meant lack of protection for builders and the latter quickly abandoned plans for extensive operations.

Elliott & Godfrey, of Kansas City, will shortly install a slack-coal system in their plant. This is a comparatively new method in Kansas City, but may prove popular because of the scarcity of natural gas, on which many manufacturers have depended in the past. At present, much wood is being burned, coal providing too hot a fire. The slack-coal system, including the use of a blower, allows regulation of the heat, and will be given a thorough trial by Elliott & Godfrey.

The new hotel to be erected at Twelfth and Baltimore by the Muhlebachs, wealthy Kansas City brewers, will contain a lot of brick, according to the architects, who recently visited Kansas City. Holabird & Roache, of Chicago, are drawing the plans for the big structure, and spent some time looking over the various lines of brick carried by Kansas City manufacturers and dealers.

The Pittsburg (Kans.) Paving Brick Company has added another big contract to its string. The company will provide 42,190 yards for work at Lake Charles, La. Ritchie & Ritchie, of Topeka, Kans., are the general contractors. The paving brick contract followed a smaller one of 16,900 yards secured by the Pittsburg company at the same place on December 1.

Commissioner of Public Works Simmons, of Milwaukee, Wis., will shortly arrive in Kansas for the purpose of looking over the paving in that State. Macadam has proved unsatisfactory in Milwaukee, it is said. Brick has been used in many Kansas cities, and paving brick men are not likely to overlook the opportunity of pointing out to the commissioner the numerous advantages of that material in Kansas, Milwaukee, or elsewhere.

James Kelly, representing St. Louis capitalists, is planning to establish a fire clay plant at Whiteside, Mo. Coal will be mined at the same time. W. D. Dent, of Oakwood, Mo., and P. M. Modisett, of Hannibal, Mo., also are interested. A steam shovel probably will be used.

Open weather has stimulated the building trade in Kansas City to some extent, providing continued activity for brick men. However, the pleasant weather has not been as beneficial as might have been expected. A good many contractors and builders really view the balmy zephyrs with disfavor, taking the attitude that a certain amount of bad weather is inevitable and that it might as well come in January as any other time. The building trade has a distinct aversion to starting a building or street and then encountering numerous delays from the weather. Accordingly, the situation has been little better than normal in Kansas City, though most of the brick plants are running full time and are having no difficulty in moving their output. However, the big number of permits for buildings issued is taken to mean that the coming Spring will see one of the biggest booms of recent years. Or, if not a boom, that word being objectionable to many brick men, at least a heavy volume of business caused by a legitimate growth on the part of Kansas City.

Kansas City will have a new brick plant in the near future, according to the plans of Michael McTernan, of the McTernan & Halpin Construction Company. Mr. McTernan has leased the ground on the east side of Grand Avenue between Twenty-fifth and Twenty-sixth streets from Nathan Scaritt and will proceed to build kilns and other structures necessary in the manufacture of common brick. The move was made in anticipation of the completion of Kansas City's new depot, which will be put into commission about May 1. The trend of traffic will be diverted to Grand avenue by the completion of the splendid new structure, and a lot of building will take place in that neighborhood. Mr. McTernan had an eye on this development and is anticipating this building by leasing the ground referred to, shale being plentiful thereon.

The Hydraulic-Press Brick Company has taken advantage of the building wave to land a few important contracts which will keep its Kansas City plant running to capacity. One of the largest of the contracts recently secured is that for the face brick for the new Southeastern High school in Kansas City. This will require about 400,000 face brick.

The Waverly Brick & Coal Company, which recently established offices in Kansas City, will in the near future enter the brick manufacturing business. During the few months of its existence, the company has confined its efforts to the coal industry. Its mines are located at Waverly, Mo. There is plenty of shale available, according to President F. B. Drage, and the prospects for brick manufacture are particularly inviting, as the company will burn its own coal at the kilns.

A. G. Bodwell, who recently succeeded F. C. Lafountain as manager of the Kansas City offices of the Kansas Buff Brick & Manufacturing Company, is meeting with a good deal of success in his new role. Mr. Bodwell was for several years with the Eadie Building Supply Company, of Kansas City.

The worth of brick was emphasized in sterling fashion by a fire which burned out a furniture store at 1302 Grand avenue, Kansas City, recently. Occupants of a lodging house adjoining poured into the streets scantly clad in the fear that the surrounding buildings were doomed. This concern was unfounded, a double brick firewall effectually preventing the blaze from spreading. The loss was $18,000, a fraction of what it would have been under other conditions, as the fire had more than an hour's headway before being discovered.

Topeka, Kan., offers a fertile field for paving brick men for the coming year. About fifty-two blocks are to be paved, according to a recent announcement by Commissioner W. G. Tandy, of that city.

An experiment in connection with the paving of Independence avenue, Kansas City, failed to be successful in all respects, and much of the work must be done over, as a result. Granite grit was used. The mixing qualities were not understood and the pavement between Woodland avenue and Oliver street is to be relaid. The contractor will bear the extra cost in this case, giving an inkling as to why brick paving is popular with the men who do the work.

The annual report of the superintendent of buildings in Kansas City for the year 1913 shows that brick held its position as leading building material against all comers, at least as far as the value of work was concerned. Two hundred and forty-eight brick buildings were erected during 1913 at an estimated cost of $3,396,485. The figures for other material are reinforced concrete, 22 buildings at $2,363,500; stone, 8 buildings, at $81,000; hollow concrete block, 2 buildings at $6,000; hollow tile, three buildings costing $11,000; frame and veneered, 1,339 buildings costing $3,378,850. More statistics indicating the popularity of brick are found in the report of additions and repairs to structures of all kinds during 1913.

The largest single piece of sewer construction ever handled in Kansas City will begin in the near future, the Williams & Sample Construction Company having secured the contract, calling for the use of vitrified clay sewer-pipe, salt-glazed. Concrete pipe manufacturers and bidders put up a strong fight for the work, but the bid of Williams & Sample at $92,500 was accepted. The W. S. Dickey Clay Manufacturing Company will provide the pipe. The sewer will be known as the Centropolis, and will run from Bennington avenue to the Blue river along Fifteenth and Eighteenth street.

The Lumberman's Supply Company has established a Kansas City branch, F. B. Clyatt being put in charge of the offices in the Gloyd building. Mr. Clyatt has been prominent in brick circles of Kansas City for some time past. The Kansas City office is the fourth established by the Lumberman's Supply Company, the others being located at Topeka and Wichita, Kan., and Springfield, Mo. The output of five companies will be handled by the Kansas City branch, which will confine its efforts to building brick. No pavers will be carried, at least in the immediate future.

Chicago.

All reports indicate that the present year will be an active one in building lines here. The architects are busy, plans now being under way for a considerable amount of work, varying in character, so that everyone interested in the clay industry can hope to secure some share of the orders for material. The aspect is much brighter than it was a year ago, and while there is a tendency to hold off until the weather gives assurance of being favorable, there is still to be noted a reasonable amount of activity. The Winter thus far has been mild, but nearly everyone hesitates to take advantage of it for outdoor work until about March.

The clay men are planning, figuring and otherwise getting things in order for the business that will be sure to come with the opening of the season. At most many of them are not overly active, but this is to be expected at this time, and at least a few of them have taken advantage of the inactivity to enjoy a period in more favorable climes. In the meantime the stay-at-homes are taking the situation in a philosophical way. There is a brushing up of exhibits, and new samples and other details that will be of value later, when the material business is on the jump.

There has been a new Richmond to enter the face brick field here within a few weeks. This is the Kimbell-Hill Brick Co.,

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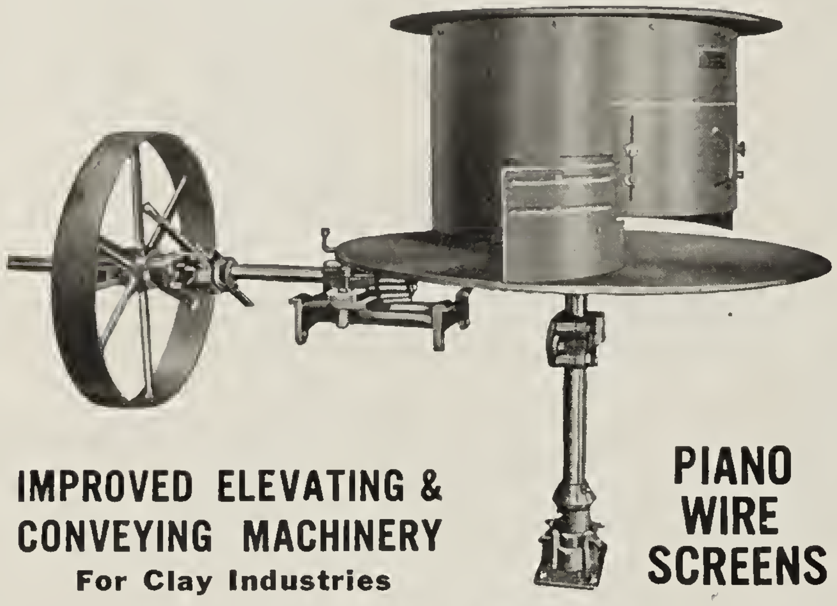

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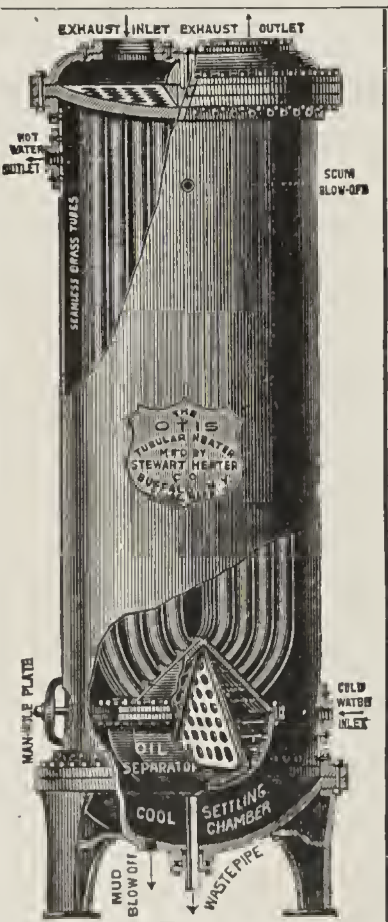

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with offices at 319 Chamber of Commerce building, the haven of the brick men. The incorporators are all well-known brick men, and likewise have been identified with the industry for years. The officers are as follows: Martin N. Kimbell, president; C. J. Hill, vice-president; B. T. Wheeler, second vice-president; A. W. Kimbell, secretary, and W. H. Dymond, treasurer. Among the products that will be handled by the new organization are those manufactured by the Brazil Clay Co., Brazil, Ind.; Kulage Brick Co., Hobart, Ind.; Belden Brick Co., Canton, Ohio; Shawnee plant of the Claycraft Mining and Clay Co., Columbus, Ohio. The exhibit is now under way and will be in order very soon. The indications, according to reports at the office, are very pleasing for business and there is now to be noted an activity that gives promise of a busy season for the new company.

Rogers M. Combs, of the Thomas Molding Brick Co., finds the situation to be very gratifying. "You may quote me as saying that the indications for the present year are most promising," said Mr. Combs, in regard to his views of the coming season's demands. "There is every reason to believe that the year will prove a good one, and our office is now busy getting things in trim for the building rush."

Charles Bonner, of the Bonner and Marshall Brick Co., is at present in Florida, having been absent for several weeks; he will remain away for sometime, as there is not any special demands to recall him to Chicago. The reports at the office, however, are of the kind that make the future look most hopeful and while orders at this time are not abundant, there is nevertheless a feeling that big things are due with the advent of Spring.

Operations will not be resumed at the yard of the Carey Brick Co. for at least some weeks. If the weather gives promise of an early Spring there will be an earlier resumption. There are some orders at this time for building brick, and with a fair supply on the yards, there is nothing to give any alarm. Mr. Thomas Carey is in Los Angeles, Cal., where he has been some weeks. He will not return to Chicago until the Winter is well over. This is an annual event with him, and he makes an extended stay every year in that delightful country.

At the Chicago office of the Hydraulic-Press Brick Co., W. P. Varney stated that there was little in the way of anything akin to activity for face brick now. This was not unusual, however, at this season, and the best that could be looked for was an at-home vacation. Still there was promise of better things later, and this was all that one could hope for until better weather.

The demand for sewer pipe, flue lining, coping and other clay products was said to be very fair at the office of the Wm. E. Dee Clay Co. Mr. Witack, the manager, was optimistic, and looked for a better demand for the above lines later. Street work and outdoor building operations were slow now, but the outlook was good. Prices on sewer pipe, while still holding firm, gave some indications of weakness in certain sections, and it would not be surprising to find a decrease in the market before very long.

James Lyon, manager of the brick department of the Meacham and Wright Brick Co., in the City Hall Square building, was feeling in good spirits over the outlook for the new year. This company has a very attractive display in its new location, and is well pleased with the change made some months ago.

At the office of the Clay Product Co. it was stated that F. W. Darling, the sales manager, was out of the city hustling after orders. They were being found, too, and within a short time both the conduit and building tile lines would be in full swing. There is a very flattering promise ahead now for the lines made and carried by this company, and everybody will be in active swing within a few weeks, caring for the orders coming with the new year demands.

The Calumet Brick Co. is not operating at this time of the year, though the building brick outlook with the company is very good. The open Winter is tempting to resume operations, but the ever present danger of sudden cold weather makes the company hold off, and while there is no special need for resuming, it is just as well. Brick are in very fair demand, and the situation promises very well indeed.

L. D. Binyon, of the S. S. Kimbell Brick Co., found the conditions to be much the same as noted in other face brick offices. Orders were not plentiful at this time, but the indications were good. The amount of work planned indicates a busy Spring and Summer. The new exhibits—one in the Chamber of Commerce building and the other on Michigan Avenue, near the Blackstone Hotel, are now complete and are attracting a great deal of attention from architects and prospective build-

San Francisco, Cal.

Since the end of the year rainy weather has prevailed almost constantly all over the Pacific Coast, the rain in northern California being the heaviest in years. This has held up current building operations almost entirely, resulting in a much more general interruption of the brick business than was observed a year ago. The storms have also, to a considerable extent, retarded work at the manufacturing plants, and some damage of a minor nature has been done; most of the concerns which have been in operation for the last few months, however, are so equipped as to be fairly independent of weather conditions.

Another retarding factor has been a general strike of bricklayers in San Francisco, lasting for about a week beginning January 14. This action was taken through sympathy with the plasterers, who had struck on account of a conflict of jurisdiction between them and the carpenters. This difficulty, which arose over the fastening of staff work at the Exposition, caused a serious disturbance in the local building trades, the master plasterers and other employes being to some extent parties to the conflict, but the trouble now seems to be settled, and it is expected that no serious labor troubles will occur during the Spring.

Notwithstanding these adverse circumstances, a number of new contracts for brick construction have been placed, and prospects of actual work on the numerous jobs figured are becoming better all the time. Reports in financial circles indicate that money for building purposes, which could hardly be had in December, is rapidly becoming available, and that most of the delayed projects will soon be financed. A strong revival of business is accordingly expected as soon as the weather will permit active operations.

The manufacture of pottery products for plumbers' use at Richmond, Cal., which showed signs of depression toward the close of 1913, is now picking up again, and the two manufacturers operating there are confident of a good year. The Pacific Porcelain Ware Company, with offices at 110 Market street, San Francisco, which closed its plant before the holidays, now has its plant in full operation, employing 126 men. Many orders are reported for shipment within the coming month. The Western States Porcelain Ware Company, also located at Richmond, reports a good volume of orders.

The Pratt Building Material Company, C. F. Pratt, president, Examiner building, San Francisco, is gradually expanding its business in brick and other building materials. Its latest move is the purchase of the plant of the Marysville, Cal., Sand & Brick Company, on the Yuba river. This will enable the company to do a general material business in that vicinity, besides giving it a fine supply of sand for shipment to more distant points.

Geo. D. Herold, of Fresno, is figuring on the establishment of a brick plant near Gilroy, Cal. He expects to turn out paving brick and other vitrified products.

The Manhattan Pressed Brick Company has been incorporated at San Diego, Cal., with a capital stock of $50,000, by W. H. Sorille, J. H. Bickerton and F. C. Ray.

The Ogden Press Brick Company, Harrisville, Utah, closed about the middle of January for the installation of new machinery. The plant, which is said to be one of the largest in Utah, will double its capacity, having a capacity of 32,000,000 brick a year. The new equipment will also increase the variety of the output, and in future hollow blocks and tile will be an important item.

Sewer contracts are coming out in better shape than for some time past. Several small jobs for the city and the Exposition have been placed locally, and the city of San Diego is taking bids on a good-sized project. The city of Seattle, Wash., has let a sewer contract at over $70,000, and the town of Sanger, Cal., is preparing to issue bonds for a $30,000 sewer system.

The annual meeting of the Sacramento, Cal., Sandstone Brick Company resulted in the election of W. G. Metz as president; E. A. Palmer, vice-president; S. L. Smith, secretary, and G. W. Bostwick, treasurer.

One reason for better times in the common brick market is the curtailment of output, as it is believed that several of the old plants around San Francisco will not operate this year. The latest development along this line is ground for satisfaction all around, and one of the largest plants, the Carquinez Brick & Tile Company, has taken a contract to make Denison hollow blocks. This will turn its entire output to this material, supplying all points within shipping distance of San Francisco. The company will give its entire attention to the manufacturing end, as the holders of the Denison patent will establish an office here shortly and look after the marketing of the product. The Denison blocks have been made for some time in Los Angeles, and in Oregon and Washington, but this is their first appearance in the local market, and builders are already showing considerable interest in them. The Carquinez Brick & Tile Company is now located in the Sheldon building, San Francisco.

It looks as if paving brick were at last coming into its own in California. The two experimental blocks laid in San Francisco are showing up extremely well, and have attracted much favorable comment, while arrangements are being made to have pavers tried out at several points around the country. It is understood that this material will shortly receive its first trial at Modesto, Cal., which will pave two blocks along the Southern Pacific Railroad. L. R. McKenzie, of the California Brick Company, of Decoto, Cal., was recently in conference with the Southern Pacific engineers and the Mayor of Modesto, and the work has been practically decided on. The people of Niles, Cal., near the site of the California plant, are also trying to have a part of the new State highway in that section paved with brick.

The San Luis Brick Company, at San Luis Obispo, Cal., is preparing for a much larger run this year than last. More drying space has been added, and the system of handling the green brick between the machines and the kilns has been improved so as to effect considerable economy.

Specifications have been prepared for the largest sewer job undertaken in San Francisco for some time, the storm sewer for the Sunset and West Richmond districts, the estimated cost being $225,000. Bids have been taken for two sewer jobs in the Exposition grounds, on one of which the lowest figure was $6,500, and on the other $10,000.

The Abrahamson Brick Company, of Seattle, Wash., reports that the volume of business for 1913 was greater than for the previous year, but that the price ran very little above manufacturing cost. This company furnished the common brick for the McBride theater in Victoria, B. C., amounting to 800,000; the Swift Canadian Company at Victoria, 200,000, and has furnished common, clinker and "burlap" brick on several small jobs in Vancouver. About 1,000,000 brick were supplied for the Tacoma trade during the year, and shipments were made for the Federal building at Olympia, Washington. A contract for supplying 100,000 sewer brick for West Seattle is being filled, and large orders have been received for "burlap" and other rough textured face-brick have been received from Columbia, a suburb. Quite a number of hollow brick were furnished for the Seattle city schools. The company is now manufacturing a fine line of drain-tile and this year will go in more

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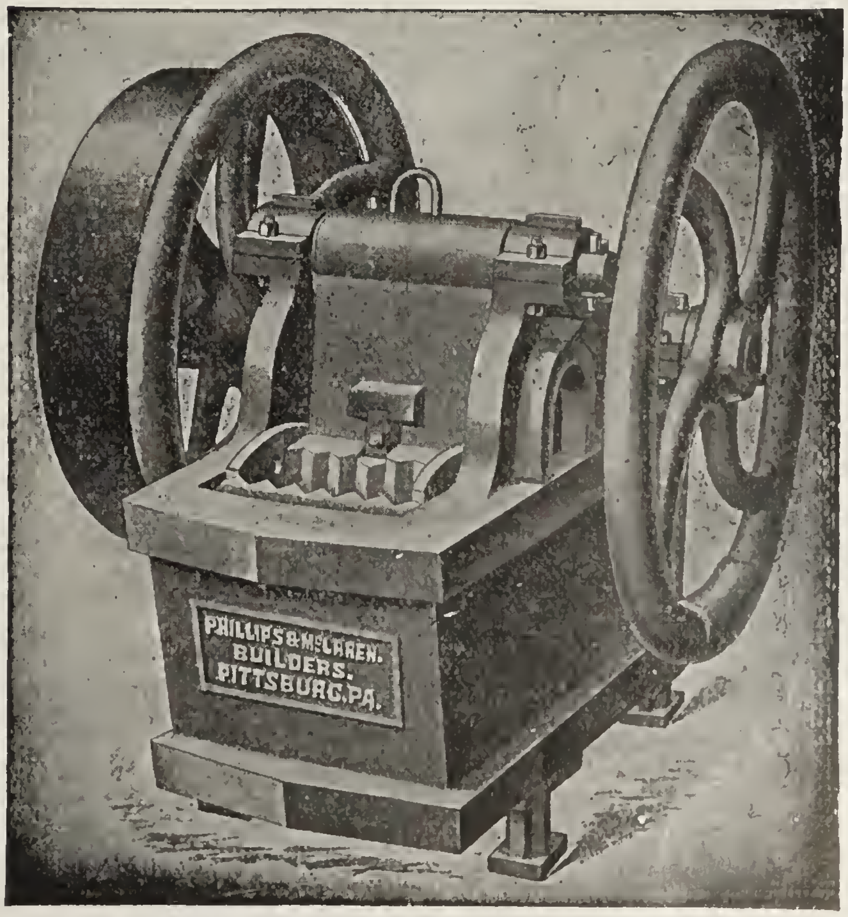

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for this class of business than ever before. It will also manufacture sewer and common brick.

The Far West Clay Company, of Tacoma, Wash., reports that the rainy season has caused a slowing down of building operations requiring clay products. By reason of the decreased building activity prices are found to be correspondingly low and many of the plants are shut down, the Far West being one of the number. Some recent orders now being filled are: Denison tile for the Elk's Club, the Star theater and Jones apartment, at Seattle, Wash., also a gymnasium and auditorium at Etonville, Washington. The new rough-faced brick known as "Fabrick" is being placed on the market and is being well received.

The Far West Clay Construction Company has taken over the work of the Denison Block Construction Company, which company has offices in Tacoma, Wash. The latter concern will leave the Puget Sound field.

Lockport, N. Y.

The Niagara Shale Brick Company, which incorporated recently with $50,000 capital, will commence operations in the Spring on the John Davis farm in Lockport, N. Y., where a modern plant is to be constructed. The brick concern has elected these officers: president, Theodore Swan, of Rochester, N. Y.; vice-president, Joseph Dumville, of Lockport; treasurer, W. C. Shapleigh, of Lockport; secretary, F. A. Ringueberg, of Lockport; superintendent, Edwin B. Reed, of Clearfield, Pa.; Salesmanager, F. W. Spicer, of Toronto, Ont.; Board of Directors, Theodore Swan, George Morris, W. A. Williams, Joseph Dumville, W. C. Shapleigh, Edward B. Reed, and F. A. Ringueberg. Extensive deposits of shale on the Davis farm have been tested out by three leading chemists of the United States and are adapted not only for common and face-brick for building purposes but also for paving material. Several well posted brick men claim the brick that will be manufactured by the Lockport firm will compete with the famous Bradford red brick which is used so extensively in this section. The plant will employ about 75 men from the start. Some of the stock of the new brick concern will be offered to dealers in Lockport, Buffalo and Rochester as the company aims to put some of their stocks into the hands of firms and individuals who are buyers and users of brick.

Philadelphia, Pa.

There has been a decided impetus to the building work in the starting of several large operations.

The operation of Mr. James Arthur is under way, and will comprise 122 brick houses and 10 stores at Second and Allegheny Ave. This operation represents an investment of nearly $300,000, exclusive of the cost of the ground.

Announcement was made that Mr. Solomon Greenberg intends starting a very large operation of over 200 houses on the large plot of ground recently purchased at Haverford and Lansdoune Aves. and between 63rd and 65th. It is understood that the price paid for this plot of ground was $160,000. The building of this operation is conceded to be one of the largest operations ever started in West Philadelphia, and will involve a total expenditure of over $1,000,000.

The trades in general believe that the starting of these operations indicates the coming revival of building activity in other parts of the city.

Brick manufacturers report that they are having a good demand for all kinds of brick, but it seems that the old Colonial brick is again to come into preference. The clay people claim that, owing to the open Winter that enables all outdoor work to go right on, all orders received are being delivered promptly.

Contracts have been awarded for a large amount of sewer work to be done for the city and some of the contractors have already started this work.

Vitrified paving brick will come in for a large share of city work in the suburban districts, as nearly all the streets will be paved with this material. It has been tried and tested and has given good service, and as a consequence is given preference in the specifications.

Reports received from the fire proofing and hollow tile manufacturers state that trade is good for this time of the year and the general trade reports in this line and that they expect an early Spring business. From the general inquiries received, it looks as if there would be a very large demand for clay fire proofing, especially in the high class suburban improvements. Already several very large orders have been placed for future delivery.

Pittsburgh, Pa.

The lull in the iron and steel business is being reflected, in some instances, in the fire brick and refractory plants. This statement may, however, be "eased up" a bit with another—that the iron and steel manufacturers are taking this time to make general improvements to their properties, and the latter condition has produced some new business. In a number of instances, furnaces are being relined and are taking a good volume of refractory materials. It is currently reported that the various steel industries are booking an increased tonnage, and within a few months all of the important plants will be working as on a normal basis.

There is an unconfirmed report in the western pottery district that one or two potteries have started the decorating of imported white china. This stunt is declared to be but an added feature to the lines which the local manufacturers are making. For some years imported white china has been decorated in some Trenton decorating shops, but these shops have not had any connection with any pottery plants. The outcome of such a plan is being watched with interest not only by other manufacturers, but by buyers as well.

Manufacturing 28,000 pieces of ware daily is said to be the regular schedule of work at the Bruch-McCoy pottery plant in

Zanesville, O. This is an art-ware pottery and is admitted to be the largest of its character in the country. The concern makes many small novelties, and by so doing the volume of production is run up to high levels. For an art plant this is a record, but in the largest general ware pottery in Ohio, more than three car loads of ware are manufactured daily.

Ere the current year is brought to a close, thirty kilns will be added to the production of American pottery products, and all at one point—Newell, W. Va. This means that several thousand additional workers will have been brought into the East Liverpool, O., pottery district, as Newell is directly across the Ohio river from the latter place.

The Edwin M. Knowles China Co., of Chester, W. Va., has started manufacturing ware in its new fifteen-kiln plant at Newell, as has the Homer Laughlin China Co., who has just completed a new fifteen-kiln plant also at Newell. The former company lit its first bisque kiln just a few days ago, and this will be worked through with additional bisque kilns, until the first gloss kiln will be ready for firing.

These incidents mean much to the domestic pottery trade. In the last few years, some smaller pottery concerns have gone out of business, but the number of kilns that suspended operating is far less than the number of new kilns that are now being put into operation. Never before, with the possible exception of the starting of the 32-kiln plant of the Homer Laughlin China Co., at Newell, have so many new kilns been started at one time, in the same place and by two different firms. The production of these kilns will add materially to the total production of pottery in the state of West Virginia. It is said that the total will be increased close to $2,000,000 annually. The state will then have a firmer hold than ever upon third position in the production of pottery in the United States, the positions being, Ohio first, New Jersey second, and West Virginia third. Not a few workers from the eastern pottery districts have been applying for positions in these new potteries. That the combined production of the 64 kilns of the Homer Laughlin China Co., and the production of the 22 kilns of the Edwin M. Knowles China Co., is just about enough to control the market, is not denied. With 15 kilns added to the original capacity of 64 kilns of the Homer Laughlin China Co., this concern is made the largest producer of pottery in the entire world.

Manufacturers of vitreous hotel china, both in the east and the west, who have been making their product on any old scale of prices, will within a short while be working under a uniform wage system, just as the semi-porcelain pottery manufacturers are. While these pottery owners are affiliated with the United States Potters' Association, and their workers with the National Brotherhood of Operative Potters, the wage scale of the semi-porcelain plants does not apply to the vitreous china plants. Because of this fact, one manufacturer may be paying more for the making of a seven-inch plate or a baker than another. In order to have a uniform wage system adopted for this particular line in all plants, a committee has been appointed to make a new wage list. A system of equality is to be established, and this list will be adopted by the workers and the employers. The matter has been hanging fire for several years, and the new scale will be welcomed by both employers and employes.

Announcement has been made that the Paden City Pottery Co., of Paden City, W. Va., and which is controlled by Pittsburgh capitalists, will enlarge their plant by the erection of several kilns. The manufacturing department of this plant has been reorganized, and men who have been schooled in the making of white lined cooking ware are now in charge of the new industry.

The former plant of the Wheeling Pottery Co. may be again placed on the active list. It is said that an Ohio manufacturer has looked over the plant, with a view to removing there.

Judging from present indications, it does not seem likely that the wage agreement existing between the manufacturing potters and their workers will be re-opened during February, as is permitted under the instrument agreed upon at the New York conference late last fall. However, there is a clause in this agreement which provides also that the working scale will have to remain in effect permanently after August 1 next. This means that should present conditions continue until August 1, the agreement will stand in full force until October, 1915. Just now it appears that the manufacturers have no cause to open the agreement for changes in the working scale, for it is admitted that with a reduced tariff the American manufacturers have not lost any business. However, a few months is not sufficient time to test this phase of the question, but from all indications the manufacturers will be as busy this year as ever. Printed extracts from the "Astor Agreement," which relate to the working conditions in potteries, have been posted in every pottery plant in the United States. It has just been made known that some of the causes which are grounds for instant dismissal are as follows: Intemperance, to the extent of interfering with steady and competent workmanship; gross carelessness; wilful detruction of property; persistent use of profane language; refusal to obey reasonable orders or factory rules; disregard of rules for the preservation of health and cleanliness; incompetence, when established by a committee of fellow workers; indecency or any display of immorality in the workshops. Never before have manufacturer and workman got together on such common grounds as the above, all of which have been admitted to be for the benefit of the worker as well as for the purpose of creating greater efficiency in the potteries.

Plans are now afoot to place the plants of the Pennsylvania China Co., at Kittanning and Ford City, Pa., in operation. However, nothing definite has been decided upon. These two plants were formerly operated by Charles Howell Cook, of Trenton, N. J., in behalf of Pittsburgh, Pa., interests, which control the properties. Several deals have been considered by receptive interests to take over these two potteries, but it is said that the purchase or lease price has been considered a little too steep.

The six-kiln addition to the plant of the Taylor, Smith &

THE GANDY BELT
GANDY'S AMERICAN COTTON BELTING

Belt Users Protected

A recent decree handed down by the United States District Court of the State of Virginia enjoined an unscrupulous dealer from selling belts in imitation of the GANDY Belt for the genuine GANDY.

Similar decisions are being handed down every now and then in various states for the protection of belt users in general.

The GANDY Belt

is the original stitched-cotton-duck belting that has tempted so many imitators on account of its real merit.

The GANDY Belt costs only one-third as much as leather and much less than rubber belting, yet it wears longer than either, usually.

Get the red belt with the green edge, trade-marked and branded for your protection.

Sample on request.

The Gandy Belting Co.
732 W. Pratt St., Baltimore, Md.
New York Office 88-90 Reade St.

WHY USE GRATES? DO YOU WANT TO WASTE FUEL?

When your Fuel Problem is solved you will have the secret of making the plant pay. Come out of the rut. Fall in line with the march of progress.

INSTALL THE

Grateless Gravity Feed Fire Box

It means a Saving of at least 22 per cent in coal tonnage and permits the use of the cheaper grades of coal. It assures complete, perfect combustion in the kiln.

HERE IS WHAT ONE USER SAYS:

Boone, Iowa, May 25, 1911.

Grateless Furnace Co.,
Des Moines, Iowa.

Dear Sirs:

We are pleased to inform you that the fireboxes are still giving us the good results you guaranteed for them.

Our last burn of the kiln with the new boxes showed a saving of 22 per cent of coal and was burned in one day less time as compared with the old kilns.

These items in addition to the better quality of ware all aid in reducing the cost of the manufacture of brick and tile, which of course is what the stockholders are looking for and the managers are trying to get. We are sure that the cost of installation will be much more than offset by the saving in fuel for this season.

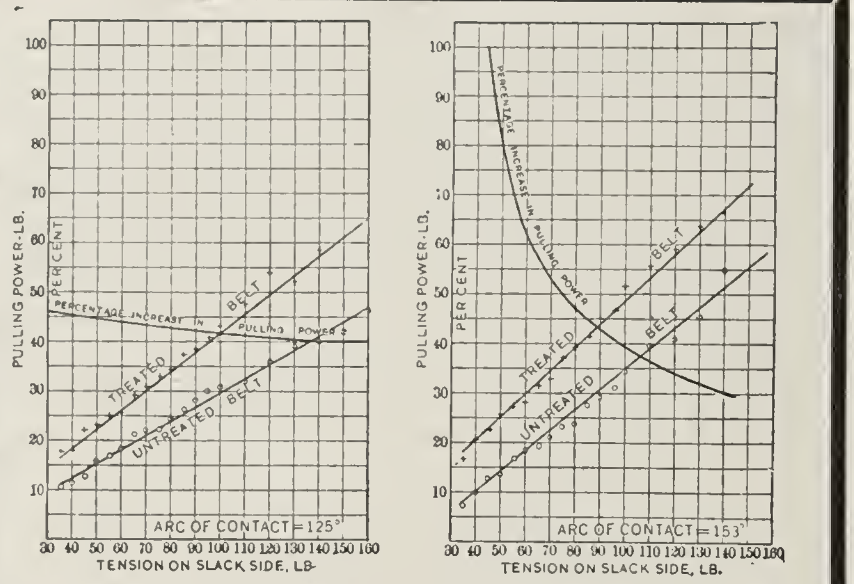
With best wishes for your success, we are

Very truly yours,
BOONE BRICK, TILE & PAVING CO.,
By A. B. Scott, Manager. By W. H. Brecht, Sales Manager.

GRATELESS FURNACE Co

Fortunes are being made in other industries by the use of By-Products and the elimination of waste. Your fortune may lie in the saving of Fuel Waste. Would it not be well to investigate? Write Now!

GRATELESS FURNACE CO.
P. O. Box 685 DES MOINES, IOWA

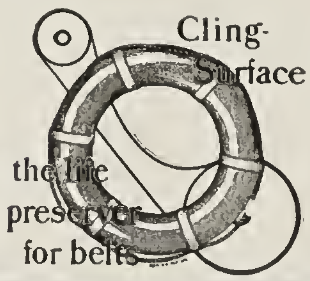


40 to 46 per cent increase *30 to 100 per cent increase*

These Curves Show the Increased Pulling Power Produced by Cling-Surface

—And as they were plotted by Robert Thurston Kent, M. E., you can know they are authoritative.

Mr. Kent tested two new belts—one treated with Cling-Surface, and the other not. To make the test perfectly fair both belts were first driven side by side in a New Jersey factory. Then, by means of a testing frame built especially for the purpose, some weights, and a polished rigid pulley, the comparative tests indicated by these curves were made.


Cling-Surface
the life preserver for belts

Cling-Surface stops slip, makes belts pliable, easy running, and long lived; waterproofs; and reduces friction.

Cling-Surface is used all over the world with equal success—in the dryest, wettest, hottest and coldest climates.

Your order or inquiry will have our best and quickest attention.

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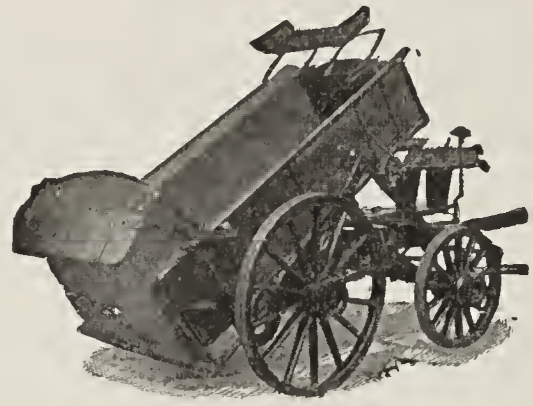
Save Horse Power



Good horses are expensive; so is feed. You want to get maximum results from your equipment.

Increase the efficiency of your delivery department by adopting **Martinsburg Brick Wagons.** You can haul 1/3 more and save 20 to 30 minutes unloading and *without breaking or chipping the brick.*

If you're from Missouri—ask us.

Auburn Wagon Co.
450 Race Street
Martinsburg, W. Va.

Taylor Pottery Co., at Chester, W. Va., was to start in full operation Jan. 15. This addition gives the firm a capacity of sixteen kilns. The manufacturing end of the entire plant will be under the management of W. L. Smith, Jr., who is well known to the Trenton manufacturers.

The inquiry into the manufacturing of pottery as started months ago under the direction of the Bureau of Foreign and Domestic Commerce has not ended, as many have supposed. Instead, the probing is to go deeper and is to be enlarged as to scope, for it is pointed out that European countries may also be invaded. Secretary Redfield of the Washington Bureau has just issued this statement: "A study of conditions in the pottery industry, in all its phases was initiated in the pottery manufacturing centre in East Liverpool, O., but will be extended as it further developed, to other localities, and probably in European countries as well. The industries themselves should also profit by this work, done in an impartial spirit, as a broad view of any branch of commerce or manufacture is difficult to obtain." American manufacturers maintained always that they have been compelled to pay more for wages than foreign pottery manufacturers pay. This has now been admitted by the Federal investigators. It has also been declared and not denied that when the committee of domestic pottery manufacturers appeared before Committees in Washington to protest against the reduction in the pottery tariff schedules, made much of this fact. Further investigation by the Government men only proved the statements of the domestic manufacturers, who, it is admitted, never once made a misstatement of fact concerning the domestic conditions when the numerous hearings were on in Washington.

The Trenle China Co., of East Liverpool, O., has started decorating imported white German china, using American made decorations. Exclusive patterns are being shown on the dinnerware, which is being sold under the price asked for imported decorated china.

Questions and Answers

(*Continued from page* 363.)

Where can I get this chloride of barium? If you could suggest anything that would help my trouble, I will be pleased to have the same.

One suggestion is that you weather the clay before you use it, and if it comes to the storage shed in large hard lumps, that you arrange to have a supply of live steam fed to the under part of the clay tile. This will hasten the slackening of any lime which may be contained in the clay and improve its quality.

If lime exists in small quantities the use of chloride of barium will be sufficient. This material may be obtained from Roessler & Hasslacher Chemical Co., of New York.

If lime exists in large quantities, or in pebbles, washing will greatly improve your product and eliminate your trouble. M. C. Madsen, Hutchinson, Minn., has successfully eliminated the lime trouble by the use of a German machine. He probably will advise you if you will write him, enclosing a stamp and mentioning this journal.

Another suggestion is to take samples of your clay from the various points where it is being gathered and send them to some good clay testing laboratory for chemical analysis. With that in hand, there should be no difficulty in an expert's being able to tell you exactly where your trouble lies.

INFORMATION BOX.

301.—The Golding Brothers Company of East Liverpool, Ohio, have referred us to you for information as to where we may be able to purchase several kinds of clay. We want, if possible, to purchase for our ceramic department the following kinds: Brick clay (calcareous and non-calcareous), paving brick clay, red clay, white clay, carbonaceous clay, slip clay and stoneware clay. Any information you can give us as to firms handling these clays will be gladly received, as we have been greatly handicapped through our not knowing just who handles these materials. Please give us two or more references when you can, as in case one may not handle them another may.—J. A. Pynch, care of School of Mines, Golden, Colo.

We submit this inquiry to our readers, as we feel this treatment will supply the necessary information in the speediest and best manner.

A New Dealer in the Three Cities.

We are not manufacturers of clay products, but would be pleased to receive a copy of your magazine, as we intend handling an extensive line of clay products.—Beder Wood, Dealer in Masons' Supplies, Moline, Ill.

A copy of the Annual Review Number of "Brick and Clay Record" has been sent our correspondent and Mr. Wood's attention has been called to the Classified Directory of Clay Products Manufacturers on page 143 of that issue.

New Face Brick Dealer in Grand Rapids.

We desire to represent some first class plants manufacturing face-brick, and thought you would be able to put us in touch with those who could serve this market economically, from a freight standpoint.—Battjes Fuel & Building Material Company, Grand Rapids, Mich.

We have sent this subcriber a copy of the Annual Review Number, which contained a list of brickmaking plants, from which, we are sure, he will be able to select the manufacturers who might be willing to entrust the sale of their product to him, so far as his particular territory is concerned.

Wants Salt Glazed Brick.

302.—Would ask if you know of any manufacturers of salt glazed brick (outside of Nelsonville and the Sparta brick, who already have agencies in the East). I would like to get in touch with such manufacturers as I can who are not already represented here, and where the freight rate is favorable to the Eastern market.—John W. Hahn, dealer in clay products, 166 Devonshire St., Boston, Mass.

A salt glazed brick is manufactured at Canton, Ohio, by the Stark Brick Co., of which E. A. Stewart is manager. This brick compares favorably with any salt glazed brick made in the country. We refer Mr. Hahn also to our Classified Directory of Clay Product Manufacturers.

Wants List of Ohio Manufacturers.

322.—Will you give us a list of all the manufacturers of pottery in the state of Ohio who make C. C. ware, Rockingham ware and yellow ware?—John L. Rice, Secy. The Vitrified Clay Industry, 1009 Wyandotte Bldg., Columbus, Ohio.

We are unable to comply with this request, as our subscription list is imperfectly classified, especially as to the potters. We ask the manufacturers of the wares mentioned to supply the information to Mr. Rice.

Drain Tile Manufacturers in Pennsylvania.

327.—I would like to receive the address of companies manufacturing drain tile in the state of Pennsylvania.—R. U. Blosingame, Instructor in Agronomy, Pennsylvania State College, State College, Penn.

We have advised this reader that we will supply the list.

Seek 235 Indiana's Address.

235.—V. C. Momson, Franklin, Ind.; F. S. Hart, Yorkshire, Ohio; J. M. Powell, Brooklyn, Ind., and Frank Shideler, R. R. 4, Huntington, Ind., ask for the address of 235 Ohio, whose description of a plant location in Dec. 16 issue, page 1258, appealed to them.

We have supplied the name and address requested.

Seek Address of 236 Ohio.

236.—In the Jan. 6 issue, Question and Answer Department, a reader (236 Ohio) wanted a plant location for the manufacture of shale paving block. The following ask for the address of this correspondent: J. W. Leech, Erie, Pa.; C. G. McIntosh, Carlinville, Ill.; Pittsburgh Clay Product Co., Pittsburgh, Pa., and Pittsburg Machinery Co., Pittsburg, Kansas.

We have sent the required address to each of the parties mentioned.

Wants Bids On Brick and Sewer Pipe.

333.—This city is calling for bids on a vitrified brick, pipe or segment block sewers, 42 inches in diameter. I would like to get information on this style of sewer. I have tried to get prices on the latter, but no one seems to handle them. Are they cheaper per 1,000 feet than brick or pipe? The trench is to be 14 feet deep and the bottom probably will be thick sand. Kindly give prices and state who handles them.—J. H. Whalen, general contractor, South Milwaukee, Wis.

We submit this information without further comment to manufacturers of this class of material.

Wants to Buy Paving Brick.

I beg to acknowledge receipt of several booklets addressed to the John's Pass Realty Company, the St. Petersburg Investment Company, and H. Walter Fuller, entitled "The Truth About Concrete Roads of Wayne County." This country is strong for brick, but competition is not keen enough, as there is one large Georgia concern that gets 90 per cent of the con-

Drying Tile with Waste Heat in a Small Yard

MANY people do not realize the amount of heat available in cooling kilns. A small yard containing only five small 24 ft. kilns were using steam for drying.

They installed a

Sturtevant
(REG. U. S. PAT. OFF.)

Waste Heat Drier

over a year ago. They fully expected to use an auxiliary furnace part of the time when they did not have a cooling kiln available. They have not had a time when they did not have ample heat to dry their tile, their saggers and their clay. And they are drying in 12 hours instead of 36 hours.

The small plant can get the advantages that the large plants are enjoying.

Waste heat is not only heat from kilns. You have exhaust steam which could be used. You have boiler gases.

If you have a steam pipe kiln, we can increase its capacity 40 per cent. to 50 per cent. at a very small outlay. Just consider if the circulation of air in your driers is perfect.

All these questions are clearly discussed in Bulletin 202-S on Drying Clay products, which will be sent free on request.

It certainly won't hurt you to know what others have patiently worked out. Send for it today.

B. F. STURTEVANT COMPANY
Hyde Park, Boston, Mass. and all principal cities of the world

BRICK & CLAY RECORD

tracts, owing to the fact, so I am told, that it controls the manufacture of paving brick in Georgia and vicinity.

St. Petersburg, Fla., is now asking for bids on brick paving on an avenue between six and seven miles long, 100 feet wide, which will be paved on either side 20 feet wide. This is a large contract and I have a friend who would like to bid on the work, but up to this time he has been unable to locate a plant manufacturing paving brick, that is near enough to make shipments at a price to compete with the concern above mentioned. If you can give me the names and addresses of any Southern manufacturers, manufacturing the kind of brick required, I will appreciate it.—H. M. Pancoast, Box 51, St. Petersburg, Fla.

We have sent Mr. Pancoast the information he requests and have also asked the National Paving Brick Manufacturers' Association to take the matter up with its members and to communicate with Mr. Pancoast direct.

Wants Face Brick and Sewer Pipe.

328.—We write to inquire if you have a list of the manufacturers of face brick and sewer pipe in Ohio, Pennsylvania and New York state. We are in position to take on some new lines of face brick and would be pleased to be placed in communication with factories not represented exclusively in this territory.—Cable-Loughman Co., by Walton N. Cable, 1328 Broadway, New York.

We regret that we are not in a position to furnish you with a list of the manufacturers of face brick and sewer pipe in the states mentioned, but we are publishing your letter and we believe that you will receive a good many inquiries from our readers who wish representation in your territory. Perhaps our Classified Directory of Clay Products Manufacturers will give you some suggestions.

Enameled Brick Plants.

316.—Will you send us a list of enameled brick manufacturers in the East and Middle West?—S. A. Morman & Co., Grand Rapids, Mich.

The enamel brick manufacturers in the United States are as follows: Hydraulic-Press Brick Co., St. Louis, Mo.; Hydraulic-Press Brick Co., Winslow Junction, N. J.; American Enameled Brick & Tile Co., South River, N. J.; Andrew Ramsey, Mount Savage, Md.; Tiffany Enameled Brick Co., Momence, Ill.; Sayre & Fisher Co., Sayreville, N. J.; Gladding-McBean Co., Lincoln, Calif. If there are any other manufacturers of enamel brick, we have failed to obtain their location. In the Nov. 18 issue, on page 1037, under query 222 Texas, we answered a similar question and asked our subscribers if they knew of any other plants to please inform us. We have failed to receive any response to this request.

Wants Ohio List of Clay Workers.

326.—In connection with an investigation of tile drainage work which I am at present carrying on in northwestern Ohio, I am very desirous of obtaining a complete list of the business names and addresses of all persons or companies who are now manufacturing clay tile in the thirteen counties of this state in which I am working, the names of which are: Allen, Auglaise, Defiance, Fulton, Hancock, Hardin, Henry, Mercer, Paulding, Putnam, Van Wert, Williams, Wyandot. If you can furnish me with this information, I assure you I will appreciate it very much.—F. N. Meeker, Agent U. S. Dept. of Agriculture and District Supervisor, Lima, Ohio.

We are sorry to advise that we cannot give you the list requested, but we are publishing your letter and we believe that you will get a large number of responses.

Wants New Equipment.

297.—I am sending you your service sheet, having asked thereon for information on practically all that would go to the equipment of a small plant. My relation to the one in mind is that I have been asked to draw details for a plant, as well as to suggest equipment throughout. I have had considerable practical experience in brick yard and clay bank work and am at present salesman for a company that subscribes to your journal. I shall be pleased to have your co-operation in this as early as convenient.—B. W. Figgins, 410 N. Pulaski St., Baltimore, Md.

We have sent out this request to all manufacturers through the agency of our Special Service Bulletin and undoubtedly Mr. Figgins will get the desired information.

Wants Building Material.

321.—I am in the market for a considerable amount of face brick and partition tile in an apartment house I am going to build. I am also always in the market for promenade tile. I will be glad to hear from any of your readers.—C. J. Rozelle, contractor and dealer in tile and marble floors, fireplaces, etc., Anderson, Ind.

We have sent Mr. Rozelle a copy of our Classified Directory of Clay Product Manufacturers.

THE GERLOCK

DO
NOT
WORRY

any more with that old wooden hand wagon or truck when you can buy the well-known

**Gerlock Steel
Hand Wagon**

Made entirely of steel, with roller bearing wheels, so that one man can operate with ease.

Tell us what you have to haul, how much you desire to haul at a time, and whether you desire a drop side or end, and we will be glad to quote you.

Correspondence Solicited

H. W. GERLOCK
HUNTINGDON, PENNA.

Prize Problem Contest

In each issue of "Brick and Clay Record" a problem will be propounded to the readers—usually an actual experience of some clay worker, who, confronted with certain conditions, sought a solution and succeeded, or, having failed, still waits a Moses to lead him out of the wilderness. A special prize of a paid-in-advance subscription to "Brick and Clay Record" for three years will be given for the best answer.

PROBLEM NO. 4.

What would you do if you had a three-kiln plant modernly equipped as far as it went, with an inexhaustible bed of clay that burned the finest of hollow ware and there was little or no competition and you had a demand in your local community for five times as much as you could make—what would you do if such a condition actually existed and you did not have the capital to swing a larger project?

Send in your answer to Problem No. 4 so it will reach this office before Feb. 11. Address your letter to "Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 5:

What would you do if your fire brick, which always had burned uniformly and without trouble, suddenly came out of the kiln badly cracked? The cracks usually are on the edge of the brick and run towards the center for about one or two inches. The same clay is being used, the same methods of manufacture, the same dryer, the same kilns and the same men are utilized in the production as heretofore. The brick from one part of the kiln do not crack any oftener than in another part.

Send in your answer to Problem No. 5, so it will reach us before Feb. 20. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 6:

What would you do if you were going to install electric motors in your plant—use belt drive or connect them direct to the machines?

Send in your answer to Problem No. 6, so it will reach us before March 6. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

Problem No. 7 will appear in the Feb. 17 issue and new problems will be published in subsequent issues. Answer to Problem No. 4 will appear Feb. 17; to Problem No. 5, March 3; to Problem No. 6, March 17.

ANSWERS TO PROBLEM NO. 3.

The following answer by a subscriber who uses the pen name, "Ceramic," is awarded the prize on Problem No. 3. There being so many excellent answers we have given consolation prizes of one-year subscriptions to P. J. Fish, Akron, O., and C. Forrest Tefft, Alfred, N. Y. The winner answer is:

Believes in Preparation.

Making the preliminary assumption that the young man is sufficiently industrious, sober and ambitious to insure his success in a field to which his abilities are adapted, I would certainly recommend that he make brickmaking his life vocation,

First, clay working, now that our forests are demolished, is the young man's opportunity—the field of the present and future.

Considering the father's failure, the young man may have inherent ability, and certainly has opportunities which the father lacked.

He can start the game with youthful vigor, and ambition. His desire to follow this business, knowing his father's failure, shows that he is naturally fitted for it, for a man works hardest at the labor which pleases his heart.

He has the benefit of his father's experience, and should know better than anyone else, the reasons why his father failed;

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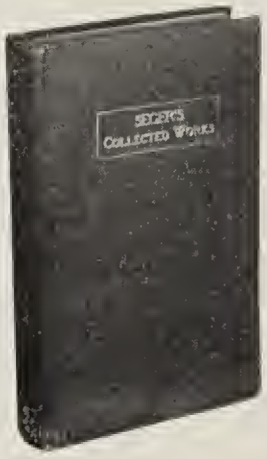

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he has the benefits of that usually valueless after-reflection on the why of things done wrong. In short he has to guide him a vast experience which, tradition says, is founded upon mistakes.

He can have the benefits of a ceramic education—an asset denied his father. In this education he can get the full chemical, physical and engineering knowledge of why his father failed, and of how he can succeed. Here he can even learn how to express himself forcibly, intelligently and earnestly before business men, and how to be manly among men. So I would advise: "Give the son the opportunity of a ceramic education."

If it is necessary that he earn his own way through school, he will appreciate the value of his time there all the more. As he acquires this education, give him the full circumstances of your failures and let him solve them as problems—condemn or approve, until his solutions satisfy. Give him practical experience during vacations and at every opportunity. Help him to knit theory and practice into a stronger fabric than either alone will make.

When school days are over, give him the responsibilities of a real authority, as rapidly as he can assume them successfully.

Granted that the greatest leaders of men are born, to be an ordinary successful leader requires only energy, ambition and courage.

So the son has a better opportunity to succeed in this vocation than in any other. It is a big, live field of real opportunities. He has youth, inherited experience, personal experience, special training, and the plant itself.—Ceramic.

Give Him a Real Try-Out.

Our Fifty-Six Year Old Friend in Problem No. 3 is inclined to under-rate his achievement in the brick manufacturing business. He probably has been at it thirty years and made a living for himself and family, and now has a plant worth upwards of $30,000. If he started with small capital, as is quite likely, he has not done so very badly. Of course, 20,000 per day is a small output, but his expenses are doubtless small and he is doing a safe business, which, while not a brilliant success, is still not the dismal failure his modesty pictures it.

I would not advise your son to "Follow in your foot-steps," for in that case he will be his father over again, and would never make more than 20,000 brick per day.

Find out if he is adapted to the business. Give him a trial in the plant, taking a man's place. There are no easy jobs in a brick plant, and if he holds out three months doing a man's work and is still desirous of learning the business, I would consider him satisfactory as a "probationer" and "take him into fellowship."

Making brick from clay is not a new game. It is between five and six thousand years old, and the business is now as honorable and dignified as it is ancient in origin. Making brick at all is no small task; to make a creditable article, materially improving on the product of our forefathers and at the same time to meet competition and conduct a safe business is a task worthy of the best and brightest men in our manufacturing world.

Your son should acquire in a comparatively short time the advantage of your experience, and start—not where you did thirty years ago—but where you are now and, with due respect for what has been done, work for greater success in the near future. With the vim and energy of his young manhood, he can, working in conjunction with his father, increase the capacity of the plant and make 40,000 brick per day, thus doubling the present output.

The writer can refer you to several small plants where this is being accomplished successfully. The men make 40,000 for a a day's work; if they fall behind one day, they make it up the next, keeping up the average. They make 12 brick, but count only 10. This allows for bats and damaged brick and is more than sufficient to take care of this loss. The men are satisfied and receive pay on this basis and the plants are easy to handle and are profitable to the owners.

There is nothing the matter with the brick business. To take clay, worthless in its raw condition and to make it into good brick—a staple article that always has a value and that is the best all-around building material known and will serve man for countless generations, is a work to be proud of.

The finished product of a brick plant shows the ability and character of the man who produces it. He not only makes a profit on his ware, but he perpetuates himself in burned clay and has the satisfaction of being engaged in a business that has always commanded respect and will continue to do so to the end of time—a business that is worthy of the best talents of our Friend's son—of any man's son.—P. J. Fish, Akron, O.

Believes in Clayworkers' Schools.

Your son has shown by his desire to become a clayworker, that he realizes there is no better field in the industrial world today than that open to the clay products manufacturer. By all means help him in his desire by sending him to one of the state colleges of ceramics.

In the mean time, join the N. B. M. A. and subscribe for "Brick and Clay Record" (if you are not already a subscriber) and in this manner get in touch with the most progressive clayworkers of today. Then secure the services of a young ceramic engineer and start your plant—provided your troubles did not arise from a clay that was not or cannot be made into a good salable product.

With all due respect for your many years of experience, we are never too old to learn and two heads are better than one.

There are so many little pitfalls from the clay bank to the finished product upon the job, that one has to be on the alert every minute in order to keep safely upon his feet. The ceramic engineer has specialized. during his whole college course, in clay wares, their production and the difficulties with which one meets. He is also in touch with the latest and best methods that help to make the plant efficient. For these reasons he is the man you need while your son is at college. As soon as the son has completed his ceramic course he will advise you to double the capacity of your plant, if the market is good. If it is not good, he will take definite steps to make it good, either by making a better article at the same price or the same ware as you have been producing, but at a lower cost and a more attractive selling price.—C. Forrest Tefft, New York School of Clayworkers and Ceramics, ('14), Alfred, N. Y.

Advises Advices of Expert.

If you have a clay fit for your ware and a market for it you are bound to succeed if the plant is built right and run right. If you don't have drying or burning-troubles it must be lack on system in your plant. Consult a clay-expert and let him advise you.—Alf. Satre.

Let Him Follow His Inclination.

I would say by all means encourage the young fellow, from the fact that it is best to allow him to follow his inclinations so far as selecting a trade or business. Then in addition I have the advantage of at least 14 years to show him wherein I failed to make good.—E. H. Bradley, Layton, Penn.

Encourage Him By All Means.

Undoubtedly I would encourage my boy in his ambitions to be a clay worker. First, because it is better to train him in the way he is naturally inclined. Second, even with my own failure before me, the business is a success because hundreds have succeeded.—Frank Shideler, Huntington, Ind.

Pins Faith in Master Clay-Worker.

I would encourage the boy in the business. The boy should profit from the fathers mistakes. A boy or man will do best at what he wants to do. Every man has the right to get his good from God. And does get it so. So far as a man learns to recognize the government of God, to admit Him as the head of every enterprise he will look to the Divine mind as not only the supply but the immediate director of business concerns—Z. P. Willis, Ullin, Ill.

Believes in Thorough Preparation.

The fact that you have made a failure, does not signify that you should discourage your son from going into the brick business. You might have made a failure of any other business. There are as many opportunities in the brick business today, as any other business. Thirty years ago it was in its infancy. Most all brick were hand made, and all of us old-timers got our schooling through Experience which is a hard teacher. Today things are far different and the possibilities are greater. If I were a young man, 20 years old, and wanted to go into the brick business, I would endeavor to get a ceramic education. Next, I would get a job in some brick machine factory and learn the rudiments of machinery. Then, I would look around for some up-to-date plant that was well established and ask for a job. Not as superintendent, as I probably would not get it, but just as a common laborer. Then my education would commence, and be assured promotion would follow as fast as I showed myself capable. Brick manufacturers are always looking for capable men to fill the positions higher up. This will take time? True enough. But any business you go into will take time to master and the successful business man is master of all the details of his business and a man will be most successful in the business that he prefers most. I would advise if your son desires to go into the brick business to give him all the assistance you can, to help him over the rough places.—N. Hermes, Redcliff, Alta.

Suggests "Cox" as Good Example.

There is much food for thought in problem No. 3. Just how to discover the cause of the father's failure is problematical. Was it a lack of knowledge in ceramics, loose business methods, or was he in a rut that many are in at the present time and seemingly cannot get out of, notwithstanding the opportunities that are afforded with a small outlay of means?

But, as we are not all constituted alike, it is just possible the boy of 20, though immature in years, may be more progressive, and has observed that his father has been in a rut, hence his desire to adopt the profession, believing he could make a success of what his father had made a failure of.

As I view the matter, I am impressed that after having had a heart-to-heart talk with the boy, and being convinced that he was sincere in his desires, I would give him the benefit of my experience and say "Go ahead, my son, your ideas may be valuable, and my failure may have come through not being progressive enough. We will see what you can do."

Those who are abreast of the times in clay work realize that there is a broad field and a bright future in store for any young man who will apply his time and talents in this direction, as the clay industry is still in its infancy. But it takes push and stamina to become successful, and some of our clay workers can get an object lesson from "How Cox Got Into the Game."—W. T. Ayland, Salesman, Improved Brick Co., 300 Atlas Block, Salt Lake City, Utah.

Would Explain Weak Points.

I would first explain to my son all my failures and weak points and the dangers of the business. If I had made a failure I would feel qualified to warn my son of the pitfalls. If I

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The system consists of the conveying belt, head and tail pulleys, carriers and return rolls, with their bearings, shafts and take-ups, together with such additional fixtures as are necessary to meet the various conditions in the different installations.

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In the Dodge conveyor special attention has been given the details in design, so that the highest conveying efficiency may be obtained and the frictional losses minimized.

There are no complex parts to get out of order, causing frequent shutdowns and losses. Ample adjustment has been provided for, so that a proper roll alignment may be secured. The system for lubrication is positive and copious; in fact, the Dodge conveyor is built to run continuously, hence the delivery of material is positive and at all times dependable.

If you are planning a conveying system for your plant, put the proposition up to the Dodge engineers. Skilled in work of this kind, they are in a position to best supply the best demand.

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thought he had the ability to run a plant I would urge him to take the plant. In all probability he would make a success. Because the father has made a failure is no reason to believe that the son will do the same.—H. G. Kiger, 302 West 7th St., Fulton, Mo.

Sees Great Future in Brick.

Assuming that there is plenty of good raw material and a natural outlet for the product, I would encourage the son to carry on the business started by his father. If circumstances would permit, I would give him a course in ceramics, and this together with the practical experience one is inclined to think he has, would fit him for the place. If he is a "chip off the old block," and sticks as his father has, he certainly will succeed. He will benefit greatly by his father's successes and failures. Failures caused by mistakes, which, known to him, he can avoid. He is living in an age of modern equipment, designed to save labor and to make a better product. At his age he should live to see the time when the supply will not equal the demand, as is the case in the paving brick industry at this time, when he will be enabled to get better prices than his father ever did. It is only a matter of a few short years when the people will awaken and build fireproof cities, and not only fireproof buildings. With fair management, your son should double the capacity of the present plant within the next ten years, when it should begin to yield a profitable return, and both father and son can enjoy some of the fruits of their efforts.—C. N. M.

ANSWER TO PROBLEM NO. 1.

J. M. Powell, president of the Indiana Drain Tile Co., Brooklyn, Ind., sends in this belated reply to Problem No. 1:

"Replying to problem No. 1 in your 'Prize Problems for the Clay Worker,' would answer that we solved our problem here which is similar, by building and operating a machine a photograph of which we are enclosing you herewith, (same was printed Dec. 1, 1912 in this journal), which thoroughly mixes the shale from top to bottom, saves about one-third of the power of the dry pan and is much cheaper then getting the clay out by hand, besides giving a thorough mixture which eliminates many of the problems in burning.

"Will just state that the condition of which you speak in this problem was so serious that we could not get our clay out by hand by blasting and shoveling and as there was no steam shovel built that would reach the height of our bank we designed and erected a machine which has been in successful operation for two years.

"To sum the whole matter you would just say that any method that will thoroughly mix the clay as it comes from the bank will best solve the problem No. 1."—J. M. Powell.

Freight Tariffs

Hearings were begun before the Interstate Commerce Commission, Wednesday, Jan. 28, on the protests of the brick and other burned clay interests, as against the proposed increase in rates, in the application of the Eastern lines for a five per cent advance over present legal tariffs. "Brick and Clay Record" is represented at the hearings, which will extend over several days. Among the witnesses who testified at the first hearing were James G. Barbour, of the Metropolitan Paving Brick Company, of Canton, Ohio, and chairman of the Traffic Committee of the National Paving Brick Manufacturers' Association; C. H. Lambie, of the Findlay Clay Pot Company, of Findlay, Ohio, and Washington, Pa.; G. F. Perkins, traffic manager of the Illinois Brick Company, of Chicago, and C. M. Thirlkeld, representing the National Fireproofing Company.

The following changes in freight rates that apply to clay products are in effect at the time this issue goes to press—that is, February 1. Readers of "Brick and Clay Record" are urged to follow this column closely and take note of changes that in any way affect their shipments, or shipments from points that are competitive. In case the rate is different than that upon which you have been figuring, and you feel any doubt in the matter, write to the Editor of the Freight Tariff Department, care of "Brick & Clay Record," and he will give you the Interstate Commerce Commission's file number and the name of the carrier which filed the new tariff. On the other hand, if you are using a tariff which you think is too high, and have any reason to believe that some competing point is being favored with a lower rate, write us, giving your reasons, and we will do what we can to have the rate adjusted, or to see that you have a satisfactory reason for the seeming discrepancy.

From Pacific Coast Points.

From Renton and Black River, Wash., brick, common, pressed and paving, to Bellingham and South Bellingham, Wash., 6½c per cwt.

From Seattle, Wash., brick, common, pressed and paving, to Bellingham and South Bellingham, Wash., 6c per cwt.

From Spokane, Wash., brick (except glazed and enameled), common building, paving, pressed and fire, and fire clay, to Vancouver, B. C., 20c per cwt.

From Tacoma, Wash., brick, common, pressed and paving, to Bellingham and South Bellingham, Wash., 8c per cwt.

From Western Points.

From Canon City, Colo., and rate points, Brick and articles taking same rates, to Brownsville, Eagle Pass and Laredo, Tex., 32c per cwt.

From Fulton, Mo., Brick and articles taking same rates, to East Louisiana, Ill., 60c per net ton.

From Heron Lake, Minn., brick (except bath and enameled) to Esterville, Iowa, 7c per cwt; to Graettinger, Iowa, 8c per cwt.

From Kansas City, Mo., groups, common brick, to Tyrone, New Mex., 29c per cwt.

From Morocco, Mo., building brick, to St. Louis and Carondelet, Mo., 8½c per cwt.; East St. Louis, Ill., 9½c per cwt. These rates are good in either direction.

From Omaha, Neb, groups, common brick, to Tyrone, New Mex., 37c per cwt.

From Spread, Mo., building brick, to St. Louis and Carondelet, Mo., 9½ per cwt.; to East St. Louis, Ill., 10½c per cwt. These rates good in either direction.

From St. Louis, Mo., groups, common brick, to Tyrone, New Mex., 34c per cwt.

From Versailles, Mo., brick (except bath or enameled), including fire clay and hollow building tile, to Sioux City, Iowa, 11½c per cwt.

From Middle West Points.

From Chicago, Ravenswood, Weber, Blodgett, Dundee, Gilbert, Earlville, Lombard and Triumph, Ill., brick, to Price, Osseo, Strum, Eleve and Mondovi, Wis., 13c per cwt.

From Chicago, Ill., groups, common brick, to Tyrone, New Mex., 39c per cwt.

From Chicago, Ill., brick, building or paving, to Blodgett and Jackson, Mo., 13½c per cwt; to Bismark, Central, Elvins, Ester, Flat River and Farmington, Mo., 12¼c per cwt; to Charleston, Mo., 13¾c per cwt; to DeLassus, Mo., 12½c per cwt. These rates are good in either direction.

From Menominee and Tramway Wis., brick (except bath and enameled) to Osgood, Graettinger, Wallingford and Spirit Lake, Iowa, 10c per cwt; to Faribault and Northfield, Minn., 7.3c per cwt; to Farmington, Minn., 6.5c per cwt; to Albert Lea, Minn., 8c per cwt.

From Milwaukee, and Racine, Wis., brick, to Price, Osseo, Strum, Eleve and Mondovi, Wis., 13c per cwt.

From Ottawa, Ill., brick, to Crystal City, Mo., $1.90 per net ton.

From Peoria, Ill., groups, common brick, to Tyrone, New Mex., 39c per cwt.

From Petersburg, Ill., brick and articles taking same rates, to Kincaid, Ill., 80c per net ton.

From Petersburg and Springfield, Ill., brick and articles taking same rates, to Bessemer, Pa., $2.60 per net ton; to Bluffton, Ind., $1.60 per net ton; to Cincinnati, Ohio, $1.55 per net ton; to Grand Rapids, Adrian and Detroit, Mich., $2.00 per net ton; to Akron, Ohio, $2.00 per net ton; to Indianapolis, Ind., $1.35 per net ton; to Louisville, Ky., $1.55 per net ton. This tariff contains rates to many other C. F. A. points.

From Streator, Ill., brick and articles taking same rate, to Rutland, Ill., 50c per net ton.

From Eastern Points.

From Coatsworth, Ont., brick, to Detroit, Mich., $1.05 per net ton.

From Corning, N. Y., common, flat flooring or roofing brick, to Taylor, Pa., $1.30 per net ton

From Corning, N. Y., paving brick, to Taylor, Pa., $1.30; to Wilkesbarre and Williamsport, Pa., $1.25 per net ton.

From Corning, N. Y., common, flat flooring or roofing brick, to Wilkesbarre, Pa., $1.25 per net ton. This rate is published to meet competition and will not apply to intermediate points.

From Drummond, Kaulmont, Shawmut and St. Marys, Pa., hollow brick and clay fireproofing, to Liberty, N. Y., $2.60 per net ton; to Criskany Falls, N. Y., $2.00 per net ton; to Oxford, N. Y, $2.55 per net ton; to Olyphant, Pa., $2.60 per net ton; to Galena, N. Y., $2.00 per net ton.

From Langdon and Terra Cotta, D. C., common brick, to Annapolis, Md., $1.25 per net ton.

From Langdon and Terra Cotta, D. C., hollow brick and hollow building tile, to Annapolis, Md., $1.50 per net ton.

From Lock Haven, Pa., brick, clay and clay products, to Sault Ste. Marie, Mich., $3.70 per net ton; to Sault Ste. Marie, Ont., $3.75 per net ton.

From Middletown, Pa., brick and articles taking same rates, to Rising Sun, Md., $1.10 per net ton.

From Orviston and Clymer, Pa., common, chimney and firebrick, to Newport News, Va., $2.95 per net ton.

From Thompson, Del., common clay, to Baltimore, Md., $1.15 per net ton.

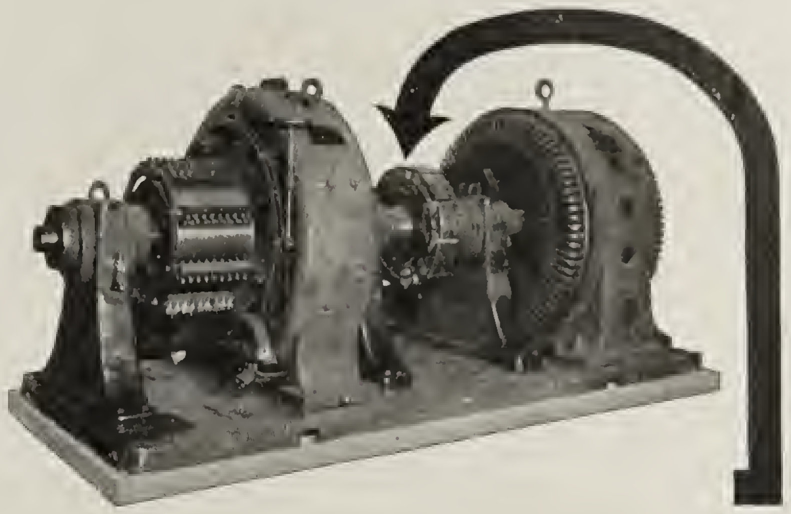
From Southern Points.

From Choccolocco, Ala., Common brick, to Birmingham, Ala., 3c per cwt.; to Anniston, Oxanna and Oxford, Ala., 2c per cwt.; to Atlanta, Ga., 3½c per cwt.

From Fort Gaines, Ga., brick, to Jacksonville, Fla., 6¼c per cwt.

From Killian, S. C., Fire Brick, to Tampa, Fla., 14c per cwt.

From North Mountain, W. Va., brick, blocks, clay, flue-lining, and articles taking same rates, to Romney, W. Va., $1.00 per net ton.



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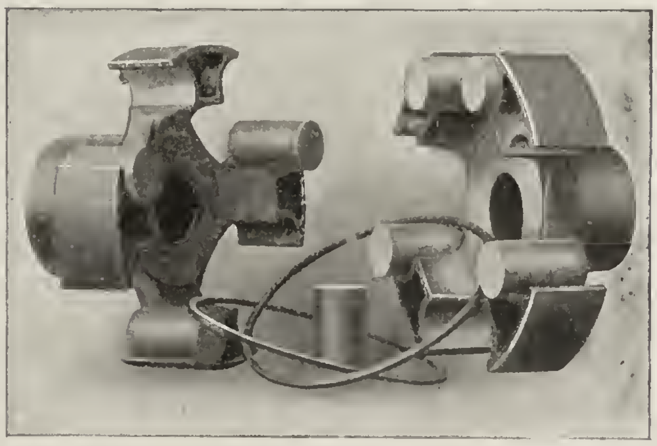

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Building Statistics

Some idea of what kind of a building year 1913 was, as compared to 1912, can be gained from the following figures, which are furnished by the "American Contractor." Based on reports received from 64 widely scattered cities, they offer a basis for comparison that is valuable to clayworkers who are anxious to extend their markets or to "reason why" they are not selling more of their products in certain sections of the country.

City—	The Year 1913.	The Year 1912.	Pct. gain	Pct. loss
Akron	$ 5,243,315	$ 4,799,927	9	..
Atlanta	5,112,944	9,987,444	..	49
Baltimore	8,988,050	8,049,575	12	..
Birmingham	6,429,737	3,813,079	69	..
Boston	17,463,330	21,161,341	..	17
Buffalo	13,109,000	12,992,000	1	..
Cedar Rapids	4,229,600	2,344,550	80	..
Chattanooga	1,033,880	1,416,555	..	27
Chicago	89,495,000	88,113,800	2	..
Cincinnati	8,348,432	8,962,214	..	7
Cleveland	23,841,160	18,180,078	31	..
Columbus	5,508,400	4,675,303	18	..
Dallas	8,480,580	4,969,638	..	69
Dayton	5,090,974	4,236,541	20	..
Denver	2,797,148	5,332,675	..	47
Des Moines	1,755,759	2,139,301	..	18
Detroit	30,432,380	25,588,470	19	..
Duluth	4,026,011	2,680,543	50	..
East Orange	1,712,981	1,591,470	8	..
Evansville	1,870,437	1,531,469	22	..
Grand Rapids	4,169,000	2,456,516	70	..
Hartford	5,784,751	7,379,525	..	22
Indianapolis	9,361,973	9,150,407	2	..
Kansas City	10,578,162	12,396,338	..	15
Lincoln	1,678,350	1,182,635	42	..
Los Angeles	31,641,921	31,367,995	1	..
Louisville	4,054,180	6,552,770	..	38
Manchester	1,652,889	2,720,541	..	39
Memphis	3,949,368	7,162,215	..	45
Milwaukee	13,647,624	15,257,162	..	10
Minneapolis	12,857,935	14,229,475	..	10
Nashville	1,666,602	1,411,114	11	..
New Haven	4,790,151	4,761,311	1	..
New Orleans	4,087,261	3,496,326	17	..
New York	162,759,277	289,937,899	..	44
Oakland	9,106,191	9,009,733	1	..
Omaha	4,110,733	4,546,761	..	9
Paterson	1,476,666	2,124,403	..	30
Peoria	2,359,124	1,595,735	48	..
Philadelphia	38,763,850	37,173,635	4	..
Pittsburgh	15,470,955	11,137,043	39	..
Portland	12,956,915	14,652,071	..	11
Richmond	3,636,476	6,255,711	..	42
Rochester	9,642,124	12,035,466	..	20
Salt Lk. City	2,153,860	5,262,398	..	59
San Francisco	21,037,264	23,338,563	..	10
St. Joseph	876,003	1,119,897	..	22
St. Louis	15,340,112	20,675,803	..	26
St. Paul	9,441,221	8,151,417	16	..
Scranton	1,486,305	1,590,861	..	6
Seattle	9,321,115	8,415,325	11	..
Shreveport	1,332,590	1,522,692	..	12
Sioux City	2,056,072	2,225,802	..	7
South Bend	890,465	896,664	..	..
Springfield, Ill.	799,514	1,422,227	..	44
Syracuse	5,206,768	4,487,861	16	..
Tacoma	2,474,364	1,876,437	32	..
Toledo	5,986,079	5,321,790	12	..
Topeka	928,767	944,199	..	2
Troy	2,564,178	1,425,872	80	..
Washington	8,396,701	21,768,483	..	61
Wichita	1,083,465	1,195,700	..	9
Wilkes-Barre	1,922,348	2,335,217	..	18
Worcester	4,909,313	6,557,120	..	25
Total	$722,378,100	$862,209,348	..	16

IN THIS NUMBER: Chaldean Special Trip
Canadian Convention

BRICK and CLAY RECORD

CHARLES A. MILLAR
PRES. CANADIAN NATIONAL CLAY PRODUCTS ASSOCIATION
CANADIAN VICE-PRESIDENT N. B. M. A.

Classified Ads Pages 538-539

PAULDING

CHICAGO, FEBRUARY 17, 1914

The Buyer's Directory Pages 506-509

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"Brick and Clay Record' Has Double the Paid Circulation of Any Other Clay Journal Published

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Sirocco

TRADE MARK.

Waste Heat Multi-Blade Fans

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Chicago, Marquette Bldg.
St. Louis, Title Guarantee Bldg.
Atlanta, Empire Bldg.
Minneapolis, Plymouth Bldg.

Kansas City, R. A. Long Bldg.
San Francisco, Rialto Bldg.
Los Angeles, Central Bldg.
Seattle, Central Bldg.
Boston, 120 Milk St.

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established [illegible]

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
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Pittsburgh Office: 310 Kellerman Bldg. Bell 'Phone, Grant 4632
Cleveland Office: 635 Williamson Bldg.

Volume XLIV
CHICAGO, FEBRUARY 17, 1914
Number 4

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The Editor's Corner

A Department Wherein is Set Apart Comment
and Opinions on Some of the Graver Problems
Confronting the Clayworker and Co-Laborers

CLAYWORKERS, without question you have learned the value of co-operative effort. The reports of the United States Geological Survey, covering the years of 1911 and 1912, and advance census reports for 1913, issued by this journal in its Annual Review number Jan. 6, have given you the actual figures.

While these reports are convincing, you do not depend upon them solely to convince yourself of the REAL value of co-operation—or the ACTUAL results of a concerted effort to tell the buying public WHY and HOW to use burned clay.

You only have to look at YOUR prosperity.

You KNOW from the way prices have ADVANCED—from the increased DEMAND—from the AWAKENED interest in what you make—you know ABSOLUTELY from these things that the general movement of the past year-and-a-half towards letting the people KNOW what you are making and WHAT you are selling, is a GOOD thing to encourage.

Now, to the point:

Early next month—from March 2-7, to be exact, there is going to be a great gathering of clayworkers in New Orleans.

This congress of clayworkers is that of the annual convention of the National Brick Manufacturers' Association.

It is not to be a meeting of any special branch of clayworking, for EVERY branch of the great clay product industry is represented in these gatherings.

The name, in fact, is a misnomer.

Not only is the brickmaker represented in the membership of the N. B. M. A., but also is the drain tile manufacturer and the manufacturer of hollow block, of paving block, of sewer pipe, of pottery and every branch of the industry that is interested in the development of clay products.

Now, the N. B. M. A. is, first, last and all the time, an organization that stands for YOU and YOUR interests.

Its POWER for good—its VALUE as an active, aggressive organization depends upon the measure of support YOU give to it.

If you are LUKEWARM—if you show or evidence little INTEREST in its welfare or in its propagation—if you do not give it a HEARTY, PRACTICAL INDORSEMENT, it is not going to do YOU much good nor will it do the great body of clayworkers much good.

It is necessary, therefore, that you do what you CAN to make the N. B. M. A. an organization of real, practical value.

One of the methods you can pursue to meet this requirement is to give it your FINANCIAL support.

This means you not only will contribute the annual dues—small in themselves, but also contribute towards any movement that it may undertake for the betterment of the clay industry.

Another way, and EQUALLY as necessary as the other, is an actual PARTICIPATION in its deliberations.

Perhaps this sort of aid is of MORE REAL VALUE to the organization than your DOLLARS.

Perhaps YOUR influence—YOUR suggestions, will do more to ADVANCE the interests of the industry as a whole than any contribution of money.

If you are SINCERE, therefore, in seeing the clay products of this Nation keeping in the lead—and they are some $105,348,762 ahead of the nearest competitor in the building and construction end, according to the last United States census report—you must participate in the deliberations of the N. B. M. A.

Go to New Orleans next month. Arrange your business affairs so that you can join the hundreds of clayworkers who will make the trip into Dixie land.

Consider that whatever you spend in making the trip is just as essential to you and your business as any other item of expense attached to your manufacturing and selling costs.

The Editor's Corner

Look upon this item of expense as actually a necessary one and act accordingly.

There are to be many grave problems to be discussed at New Orleans. Some of these—if not ALL, will be of vital interest to you.

The problem is up to you.

You should take part in these discussions.

You should have a VOICE in their disposition.

Be a GOOD clayworker, for YOUR OWN sake if not for the sake of the INDUSTRY and go to New Orleans.

WE call the attention of the clayworkers who will attend the annual convention of the N. B. M. A. at New Orleans in March to a letter we have received from Frank L. Hopley, secretary of the Clay Products Exposition Co., which fathered and conducted the two clay shows held in Chicago in 1912 and 1913.

This letter, although brief, has rather a startling bit of information and is worthy of DEEP consideration on the floor of the convention. It follows:

> There has been no arrangement for a clay show at the Panama Exposition, further than that which was decided upon at the National Convention in Chicago last March.
>
> The Clay Products Exposition Company would not attempt to put it on. It would entail a great expense and a vast amount of work which the Clay Products Exposition Company does not care to go into unless we could have the hearty support and co-operation of the entire clay trade and the publications connected with it.
>
> It may be that the National Convention at New Orleans will want to take some action on the matter.

The information contained in this letter merits a full discussion and some DEFINITE action at New Orleans.

As Mr. Hopley says, there was some discussion at the last convention, but no action was taken other than that the Association indorsed the idea.

There were no committees appointed to make any PRELIMINARY investigation.

There was no action taken that would set the machinery of an organized effort in MOTION.

And, with the close of the convention, came the close of active interest in the matter.

There is a great opportunity for the clay product industry to make a ten-strike at San Francisco.

The Exposition undoubtedly will be the greatest world's show ever held.

A permanent structure—built of burned clay, and typical of the industry in every detail and essential, could be erected.

It would house exhibits of machinery that make clay products—showing the methods in use from the days of the Chaldeans and Egyptians down through the ages to the present time.

It would house exhibits of burned clay products that were made thousands of years ago and which have been recovered from excavations of forgotten cities, as actual proofs of the durability of clay.

It would house exhibits of the present day products and show their application in the building and construction world.

It would house demonstrations of the various methods of using burned clay products.

There could be many interesting and profitable exhibits along these lines.

And every one of them would be educational in nature and carry the lesson of permanency to every portion of the world.

The New Orleans convention is the place to discuss this project.

It is the place to map out a tangible working plan.

It is the place for something definite to be done.

Gentlemen, go on record in the matter.

The time is short.

The Panama Exposition people say that all machinery that will be shown in actual operation and therefore requiring power must be allotted space by August 1, 1914.

All exhibits of machinery and other products must be allotted space prior to October, 1914.

This means that there is scarcely FIVE months left in which all the arrangements must be completed.

Whatever you do, gentlemen, do DECISIVELY.

The Editor's Corner

CONTRARY to the spirit shown by an official representative of the International Bricklayers', Plasterers' and Masons' Union at the Chicago convention of the N. B. M. A. in 1913, this body of organized laborers has begun a campaign of an antagonistic nature which, according to the newspaper reports, is "expected to give the bricklayers a POWERFUL hold on the building industry and practical control, in time, of the PRICE and MANUFACTURE of brick."

The plans of the Union were laid at El Paso, Texas, recently, when the international organization held its annual convention.

These plans provide for the entrance of the Union into the MANUFACTURE of brick.

According to the press reports the first plant will be erected at El Paso and others are to follow in different localities.

Our information comes to us in a clipping from the Houston, Texas, Post of Jan. 23. It follows:

> Brick manufacture will be added to the business of the Bricklayers, Masons and Plasterers' International Union as the result of a resolution adopted at the convention at the City Auditorium Thursday night.
>
> The action by the convention originated in a petition from the El Paso delegation that was referred to one of the standing convention committees and reported at Thursday night's meeting.
>
> The first brick factory will be established at El Paso for the purpose of controlling the price of brick in that city and to combat importation of nonunion labor from Mexico. It was claimed by the petitioners that brick are held at such high prices at El Paso that other materials are being used to the prejudice of bricklayers and that where brick are used the contractors are practically forced to employ imported labor.
>
> Other factories will be erected at other places as opportunities present themselves. The action on the part of the convention is considered by the members to be far-reaching and revolutionary. It is the first attempt on the part of the organization to go into the manufacturing business. With the expected development of this phase of the organization's business it is expected to give the bricklayers a powerful hold on the building industry and practical control, in time, of the price and manufacture of brick.

Recently a similar report came from the Pacific Coast which stated that the bricklayers' union had planned to invest several million dollars in the erection of brick plants, the first of which was to be constructed in California.

This report stated that the Union, which has an enormous surplus, expected to use its funds for this purpose and obtain additional funds by levying an assessment on every individual member of the International Union.

The brickmaker has had for several years the impression that the bricklayers' union was not in SYMPATHY with him.

Among not a few this impression developed into a POSITIVE belief.

At the Chicago Convention of the N. B. M. A. last year, however, Vice-President Preece of the bricklayers' organization was given an audience and he was very POSITIVE in his statement that his organization wanted to come into a CLOSER relation with the brick manufacturer.

Mr. Preece even went so far as to assure the brickmakers that his organization was willing to dig down into its bountiful treasure and show a PRACTICAL application of this desire by AIDING in any publicity movement that would BOOST brick.

If the Texas report is true the bricklayers' union has had a decided change of heart.

It is highly probable that it would be a GOOD thing in more ways than one, so far as the brickmaker is concerned, to have the bricklayer become also a brickmaker.

First, it is very likely that it would eliminate the organized bricklayer and break up the combination that is said to exist and which "puts the price into brick buildings."

Second, it would open up a way for the brickmaker to encourage schools of instruction and develop a sufficient number of trained bricklayers all over the country to supply the demand which the Union has REFUSED or at least FAILED to supply.

We submit the information contained in the Texas paper to the members of the N. B. M. A. for a discussion at the New Orleans convention.

If You Are Going to New Orleans

If you plan to attend the Annual Convention and wish to go on the Chaldean Special De Luxe Train, write W. P. Varney, 301 Chamber of Commerce, Chicago. You must write him at once so that you will be sure of Pullman Accommodations.

Advertising—Its Relation to Trade Papers

By Elbert Hubbard

FRA ELBERTUS, THE ROYCROFTER FROM EAST AURORA, PHILOSOPHIZES FOR THE BENEFIT OF "BRICK AND CLAY RECORD" READERS ∴ ∴ ∴

THE widespread interest in the subject of advertising is revealed in the formation of clubs to study the theme from every point of view.

The "Adscript," "Publicity," "Adcraft," and "Poor Richard" Clubs combine in their membership the brightest and most progressive minds in their respective communities.

He who imagines that modern advertising is the exploitation of the public is a biouspidati diplidocus, and would do well to come out of his comatose state and currycomb his convolutions.

Advertising is information as to who you are, where you are, and what you have to offer in the way of skill, talent or commodity.

To stand still is to retreat.

To worship the good Terminus is to have the Goths and Vandals that skirt the borders of every successful venture, pick up your Terminii and carry them inland, long miles, between the setting of the sun and his rising.

To hold the old customers you must get out after the new.

When a fellow thinks he is big enough, there is lime in the bones of the boss, and a noise like a buccaneer is heard in the offing.

The reputation that endures, or the institution that lasts, is the one that is properly advertised.

The only names in Greek History that we know are those which Herodotus and Thucydides graved with deathless styli.

The men of Rome who live and tread the boardwalk are those Plutarch took up and writ their names large on human hearts.

All that Plutarch knew of Greek heroes was what he read in Herodotus.

Life, now, is human service.

To deceive is to beckon for the Commissioner in Bankruptcy.

Nothing goes but truth.

We know this—because for over two thousand years we have been trying everything else.

Academic education is the act of memorizing things read in books, and things told by college professors who got their education pretty much in the same way.

It is easier to be taught than to attain.

It is easier to accept than to investigate.

It is easier to follow than to lead—usually. Yet we are all heir to peculiar, unique and individual talents, and a few men are not content to follow.

"Truth," says Dr. Charles W. Eliot, "is the new virtue."

"Let the truth be known about your business" idea has inspired the best firms to tell of their products to Trade Paper subscribers.

The only man who should not advertise is the one who has nothing to offer in the way of service, or one who cannot make good.

All such should seek the friendly sehlter of oblivion where dwell those who, shrouded in Stygian shades, foregater gloom and are out of the game.

Not to advertise is to be nominated for membership in the Down-and-Out-Club.

The Adscripts and the Adcrafts are opposition societies to the Mummy Trust.

About the best we can say of the days that are gone, is that they are gone.

The Adscripts and the Adcrafts look to the East. They worship the rising sun. The oleo of authority does not much interest them. They want the Kosmic Kerosene that supplies Caloric.

A good Advertiser is never either a philophraster or a theologaster—he is a pragmatist. He seeks the good for himself, for his customers, and for the whole human race.

The science of advertising is the science of psychology.

And psychology is the science of the human heart.

The advertiser works to supply a human want; and often he has to arouse the desire for his goods. He educates the trade or public to what it needs, and what it wants, and shows how and where to get it.

We are living, inventing and changing so fast, and there are so many of us, that he who does not advertise is left to the spiders, the cockroaches and the microbes.

The fact that one has all the business he can well manage now is no excuse for not advertising.

All that Shakespeare knew of Classic Greece and Rome, and the heroes of that far-off time, is what he dug out of Plutarch's Lives. And about all that most people now know of Greece and Rome they got from Shakespeare.

Plutarch boomed his Roman friends and matched each favorite with some Greek, written of by Herodotus. Plutarch wrote of the men he liked, some of whom we know put up good mazuma to cover expenses.

Horatius still stands at the Bridge, because a poet placed him there.

Paul Revere rides adown the night giving his warning cry, because Longfellow set the meters in a gallop.

Across the waste of waters the enemy calls upon Paul Jones to surrender, and the voice of Paul Jones echoes back, "We have not yet begun to fight."

And the sound of the fearless voice has given courage to countless thousands to snatch victory from the jaws of defeat.

Commodore Perry, that rash and impulsive youth of twenty-six never sent that message, "We have met the enemy and they are ours," but a good reporter did, and the reporter's words live while Perry's died on the empty air.

Lord Douglas never said:

> "The hand of Douglas is his own
> And never shall in friendship grasp
> The hand of such as Marmion clasp."

Sir Walter Scott made that remark on white paper with an eagle's quill, and schoolboys' hearts will beat high as they scorn the offered hand, on Friday afternoons for centuries to come.

Andrew J. Rowan carried the Message to Garcia, all right, but the deed would have been lost in the dust-bin of time, and quickly, too, were it not for George H. Daniels, who etched the act into the memory of the race, and fixed the deed in history, sending it down the corridors of time with the rumble of the Empire State Express, so that today it is part of the current coin of the mental realm, a legal tender wherever English she is spoke.

All literature is advertising.

And all genuine advertisements are literature. The author advertises men, times, places, deeds, events, and things. His appeal is to the universal human soul. If he does not know the heart-throbs of men and women, their hopes, joys, ambitions, tastes, needs, and desires, his work will interest no one but himself and his admiring friends.

Advertising is fast becoming a fine art. Its theme is Human Wants, and where, when and how they may be gratified. And since the Subscriber, too, must fill such wants, he profits by absorbing and reflecting these truths in trade paper advertising.

Advertising interests, inspires, educates, sometimes amuses—informs, and thereby uplifts and benefits, lubricating existence and helping the old world on its way to the Celestial City of Fine Minds.

And especially does the Trade Paper know the Science of Advertising.

First, the Trade Paper carries no shady or uncertain advertising. Everything that treads the border line of bunco is eliminated.

The subscriber to a trade paper is, or should be, as much interested in the ads as in the text. Both inform, uplift and inspire.

The Trade Paper is in partnership with its subscribers—the interests of each are identical. The Trade Paper exists for this one reason—to render a tangible aid to the subscriber.

To amuse him, tell him of the embezzlement in Alaska, the elopement in Florida, or the seduction in California—these things are not enough. ' The subscriber must get ideas that he can use in his business—and any subscriber who studies the advertisements of his Trade Paper, does.

(Copyright, Kovnat Adv. Service, Chi.)

Leading a Nation's Builders

Being a Brief Sketch of a Canadian Brother-in-Clay Who Believes in Making Haste Slowly

---

Charles A. Millar*

President Price's Limited, Toronto, Ont.

IN reading the life history of Charles A. Millar, one is prone to allude to "the 'canny' Scot". Webster defines "canny" as shrewd, wary, skilful, knowing, capable, cautious, prudent, pleasing, useful and gentle. To all of these attributes Charles A. Millar has claims.

His parents both came from Scotland, bringing with them a wealth of sturdy principles and the faculty for hard work. Beyond this, they had little in the way of worldly wealth. They gave this son, with two others, a good education, a code of upright living and an ambition to succeed that was tinged with good Scotch cautiousness.

Charles A. Millar's first employment was in a drug store, where he earned $2.50 a week. Finding that a brighter future was promised him in another line, he left this lucrative position, to embark in the manufacture of clothing. For seventeen years, he made what one lurid writer has called the "husks of humanity".

Then he succumbed to wanderlust and traveled the Dominion for two or three years. Other men have decided that Canada was a great place for the brickmaker, by reading. Some have located plants after a week's investigation. The "canny Scot" in Charles A. Millar led him to wait until he had gone up and down and east and west through the Province, before he decided to take the money he had made in clothing men and put it into material to clothe their habitations.

In March, 1908, he bought out John E. Webb, a Toronto brickmaker, and from the first day, this, his initial plunge into clayworking, was a success.. Transforming it into a stock company, under the name of the Standard Brick Company, he labored with it for two years, and then sold his interest.

He then purchased the plant owned by Isaac Price, forming a stock company called Price's Ltd. Today he is president and general manager of that company, controlling a plant that is a model of order and cleanliness, a profit-making plant that has an enviable reputation for good brick, good deliveries, fair dealing and excellent balance sheets.

He has been re-elected to the presidency of the Canadian National Clay Products Association, the members feeling that his guidance of the association could not be improved upon. The membership has practically doubled since he took the reins of office, the enthusiasm increasing in the same ratio.

The same careful management, the same conservation of resources, the same "look before you leap" principles have characterized his presidency as were brought to bear on his personal career.

And these things auger well for the future of claycrafting in Canada—the land in which Charles A. Millar first saw the light of day.

**Portrait on Front Cover.*

Mid-Winter Scene in City Park, New Orleans.

New Orleans Convention Handles Big Problems

WITH New Orleans, the Mecca of Winter tourists, as the meeting place for the Twenty-Eighth Annual Convention of the National Brick Manufacturers'. Association, and the carnival and holiday season on in full blast in that quaintest of Southern cities, there is every probability that this year's session of the great body of clayworkers will be one of the most memorable ones in the history of the organization.

Aside from the opportunities offered the clayworker to enjoy a season of rest and pleasure, there are many momentous questions to be discussed—a number of vital problems to be settled, and subjects that undoubtedly will affect the entire clay products industry will be introduced.

One of the most important discussions, probably, will be the proposed clay products exhibit at the Panama Exposition in San Francisco in 1915. The Clay Products Exposition Co., which fathered the two Chicago clay products expositions in 1912 and 1913, has announced that it will take no action in the matter unless some clay products organization takes hold. In other words, it wants the full support of all clayworkers and will spend neither time, labor nor money unless it has this assurance. The N. B. M. A. convention seems to be the proper place to perfect working plans.

It is also probable that a discussion of publicity matters will come up and an attempt made to revive interest in the Building Brick Association by reorganization along broader and more progressive lines.

The main convention—that of the N. B. M. A., will not open until Wednesday morning, March 4, but headquarters will be opened for registration and preliminary work, at the Hotel Grunewald, on Monday, March 2.

Secretary Randall, at the time this issue of "Brick and Clay Record" went to press, had not supplied the complete program of the meeting, but gives the following summary of some of the papers to be read:

"Constructive Thrift; What Clayworkers May Do to Promote This Great Movement," by L. E. Wolfe, San Antonio, Texas.

"Trade Union Principles in Our Business," by Edward Cormack, Chicago.

"Problems in Marketing Clay Products," by C. E. Foster, Bradford, Pa.

"The Cause of Keen Competition," by J. C. Schaffer, Tiffin, Ohio.

"Co-operation of the Bureau of Standards with the Clay Industries," by Prof. A. V. Bleininger.

"Smokeless Combustion as Applied to the Burning of Clay Products in Periodic Kilns," by Paul Beer, Des Moines, Iowa.

"Electricity in the Manufacture of Clay Ware," by W. D. Richardson, Shawnee, Ohio.

"Terra Cotta and Brick Hand in Hand," by Thomas F. Armstrong, Philadelphia, Pa.

"Counting the Cost in Things of Much Importance, but Little Considered by Brickmakers," by Warren Ittner, St. Louis, Mo.

"Brick Paved Highways as an Investment," by W. T. Blackburn, Paris, Ill.

"Organization the Power that Moves the World," by A. W. Hewitt, New York, N. Y.

In addition to the subjects treated above there will be a general discussion of manufacture, drying and burning, together with the modern methods of marketing clay products.

Bird's-Eye View of Main Business District of New Orleans. Grunewald Hotel is Tall Building at the Left.

There will be a smoker and general reception Tuesday night under the auspices of the local committee, and a theater party will be given to the visiting ladies. The Chaldean initiation and entertainment will be held Wednesday evening. The annual banquet will occur Thursday evening in the banquet hall of the Grunewald Hotel. Friday a side trip will be made to the immense brick and lumber plant of Salmen Brothers, Slidell, La. A sight-seeing trip will be made along the Mississippi River front in which all visitors will participate, including the ladies. At some other time the ladies also will be driven over the city in automobiles, affording a glimpse of modern and ancient city life that may be seen in no other city in the United States.

While the other clay products organizations—the National Paving Brick Manufacturers' Association, the American Face Brick Association, the Face Brick Dealers' Association, the Society of Vitrified Clay Manufacturers and the Western and Eastern paving brick associations, as well as the American Ceramic Society, have held their meetings for the year business sessions of some of these bodies will be held during the convention.

Outside the meeting of the Ancient Order of Chaldeans, which holds its first Supreme Temple council during the week and the Building Brick Association, there will be no regularly scheduled meetings other than those of the parent body.

This will give visiting delegates a greater opportunity to enjoy the sessions of the N. B. M. A., and to see the city and to enjoy the many pleasant excursions that have been planned for the clayworkers.

Fritz Salmen of the Salmen Brick & Lumber Co., assisted by other members of his organization, have in charge the reception and entertainment work and have left nothing undone to make this one of the best conventions held by the Association.

One of the most promising features about the week's entertainment will be the trip planned by Mr. Salmen for the clayworkers to give them an opportunity to see what the South can do in the way of maintaining a great clayworking institution. This plant, one of the largest in the country, is located at Slidell, near New Orleans. It is fully described elsewhere and will be viewed with interest. A special train will take the guests to the plant Friday afternoon, and in making the trip will cross Lake Pontchartrain over a bridge seven miles in length—the second longest bridge in the world.

Canal Street, New Orleans.

The Hotel Grunewald, at which hostelry the convention will establish headquarters, is one of the best hotels in the South and is modern in every way. It is the newest and largest hotel in the city and represents an investment of more than $3,000,000. It has all the modern conveniences, not excepting a complete wireless equipment.

The cuisine at the Grunewald is world-famed. In addition to regular dining rooms it operates the "Cave," a sub-basement grill that is not only the most unique of similar dining rooms, but one of the prettiest.

Not only does the Grunewald make a specialty of Creole and southern dishes but every favorite dish of the country is served.

There is so much to be seen in New Orleans for the average visitor that the five days allotted to the convention seem inadequate. However, the entertainment committee has arranged its program in such a way that most of the important places can be covered and a great many of the lesser points of interest as well.

No other city in the South and few cities in America boast finer opportunities to gladden the feminine fancy, for among the great department and millinery stores the variety is unending. Importations are largely direct from Paris, many of the establishments having permanent branches there, and the modistes of New Orleans are celebrated for their elegance and style. The retail district is principally along either side of Canal Street, in the centre of the city, and within immediate walking distance of all the hotels.

To the visitor the French Quarter is naturally most interesting. The old quarter is bounded by the river, Canal, Rampart and Esplanade, and here are to be found the quaint and massive old French and Spanish houses, the wide, paved courtyards with tropical vegetation and flowers, the antique stores, famous restaurants, quaint shops possessed by quaint

The upper picture is the mezzanine floor of the Grunewald Hotel. It is on this floor the convention hall is located.

The lower picture is of the stairs leading to the mezzanine floor from the office lobby and architecturally of great interest.

people, nearly all speaking the French language in preference to English.

Canal Street is the dividing line between the French and American Quarters. The French is "downtown"—to the north. This is due to the fact that the Mississippi River, as it passes the head of Canal Street, flows directly north. Hence the residents speak of "uptown" and "downtown" instead of North and South—a point well worth remembering in going about the City.

In the French Quarter are located the greater portion of the historical buildings and sites.

To the visitor and resident alike are afforded ample convenience for "seing New Orleans." There are public automobiles in plenty, in addition to the street car service, while on the river large excursion steamboat trips at 3 o'clock daily "seeing the harbour," which is one of the most magnificent in America.

Those seeking open-air diversion on Lake Pontchartrain will likewise find excursion steamers plying from Spanish Fort and Milneburg, crossing the lake, twenty-five miles to the lakeside hamlets of St. Tammany Parish, and up the beautiful, mirror-like Tchefuncta River, once or twice a day.

POINTS OF INTEREST.

Some of the chief places of interest about New Orleans might be summarized as follows:

THE CABILDO—This is the historical museum of Colonial Louisiana.

ST. LOUIS CATHEDRAL—One of the oldest Catholic churches in Louisiana. It was destroyed by fire several times. The present structure was erected in 1794.

FRENCH MARKET—This is one of the world's most famous markets, occupying four city blocks.

OYSTER LUGGER LANDING—This is a place worth while visiting.

HAUNTED HOUSE—This was occupied at one time by Marshall Ney, Lafayette and Louis Phillips.

BEAUREGARD'S HOME—Once the home of the noted Confederate General.

HOTEL ROYAL—Formerly known as the St. Louis Hotel and built in 1836, at a cost of $1,500,000. In the seventies this hotel was bought by the State and used by it until the Capitol was moved to Baton Rouge. Statesmen, royalty and famous men were banqueted in this place, Dom Pedro, Emperor of Brazil, and afterwards his grandson, being among its guests. Grand Duke Alexander of Russia was a guest in 1872. On the ground floor, under the dome, are left some remembrances of ante-bellum days, for here it was that the slave mart had its headquarters, and the block where slaves were auctioned is still there.

UNITED STATES MINT—A considerable portion of the silver and fractional currency of the United States is minted here.

FRENCH OPERA HOUSE—Some of the most noted singers and troupes of the world have appeared here. Adelina Patti made her American debut on this stage.

CONVENT OF THE SISTERS OF THE HOLY FAMILY—Unique as one of the two negro nunneries in the United States. The famous Orleans Theatre, where the remarkable Octoroon balls were held, once occupied this ground.

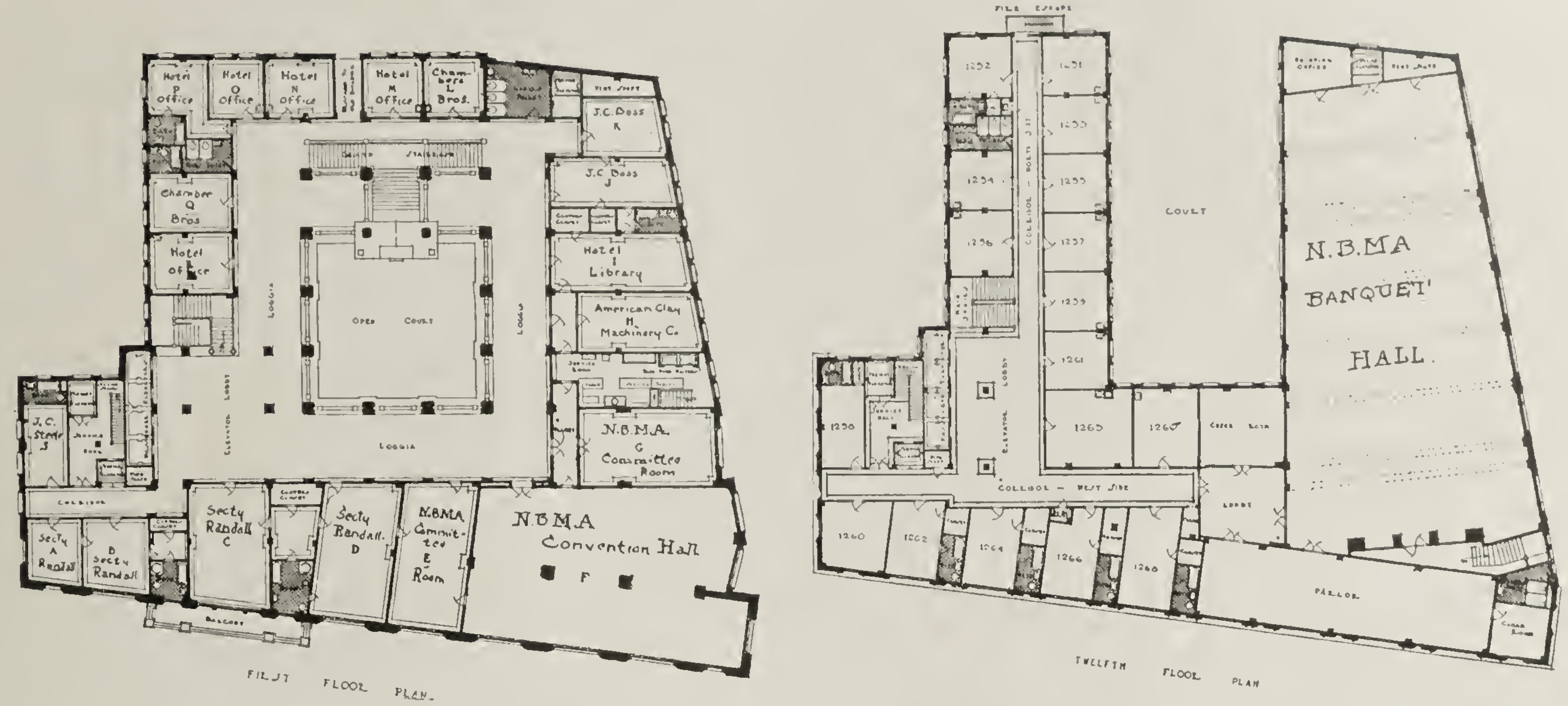
OLD ST. LOUIS CEMETERY—Oldest cemetery in the City. Many of the Spanish and French colonists, some of royal blood, are buried here.

ST. ROCH'S CEMETERY—Especially dear to the Creoe Catholics, who make pilgrimages to the shrine to pray for things desired.

OLD ABSINTHE HOUSE—Famous as the one-time headquarters of the famous pirate, Lafitte.

O'REILLY'S HEADQUARTERS—Where the blood-thirsty Spanish Captain-General lived in 1769.

CONGO SQUARE—Here were held bull fights in the Spanish regime and voudou dances in slavery days.



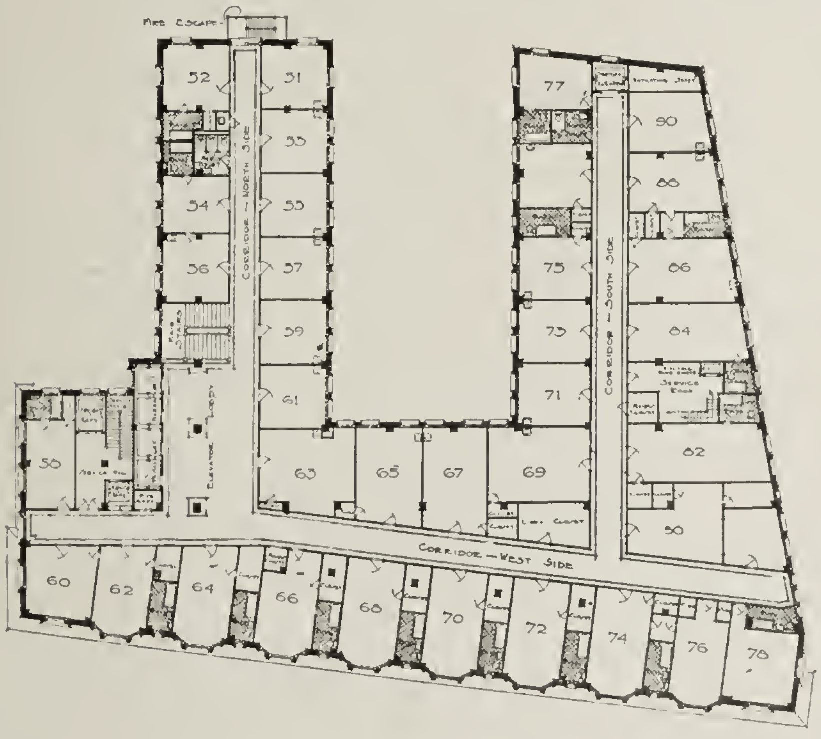
Floor plans, Hotel Grunewald—The plan at the left is of the mezzanine floor. Parlor Suites A, B, C and D have been reserved by Secretary Randall. Suites E and G also were reserved as committee rooms. Suite F is the convention hall. The remaining suites were reserved for the American Clay Machine Co., J. C. Boss Co., Chambers Bros. & Co., H. Brewer & Co., and J. C. Steele & Sons. The plan at the left is of the twelfth floor and is where the banquet hall is located.

NAPOLEON'S HOUSE—Erected to receive the Prisoner of St. Helena, who, in 1821, was to have been rescued by French patriots of New Orleans. Before their vessel reached St. Helena Napoleon died.

CITY PARK—A beautiful park, belonging to the City of New Orleans. It contains one hundred and sixty acres, laid out with pretty walks, flower beds, and with a chain of artificial lakes running through it. It also has a grove of live oak trees, festooned with gray Spanish moss, which is said to be the finest in the world. For many years this grove was the favorite duelling grounds of the City.

SPANISH FORT—A beautiful park, owned and maintained by the New Orleans Railway and Light Company. Situated on Lake Pontchartrain, at the mouth of Bayou St. John, where General Jackson landed in 1814. It is one of the most picturesque spots in New Orleans.

The above list does not begin to cover the many places of interest, but guide books, which are supplied free, will give all the necessary information.



This is the plan of all the floors above the mezzanine and up to the twelfth floor. No reservations will be made on any of these floors, until after Mardi Gras week.

Among the machinery people who have arranged for rooms at the Grunewald are:

H. Brewer Company, Chisholm Boyd & White, Stupakoff Laboratories (W. H. Gibb); E. M. Freese & Co., J. W. Hensley. C. & A. Potts & Co., J. C. Steele & Sons, Chambers Bros. Co., Thew Steam Shovel Co., Grateless Furnace Co., J. C. Boss & Co., American Clay Machinery Co., Chase Fdy. & Mfg. Co., Brown Instrument Co.

Good Position for Exceptional Man.

One of "Brick and Clay Record's" readers has an opening for a competent man, who has the gift of salesmanship and who is familiar with clayworking to some extent. A knowledge of machinery would also be a recommendation. A splendid opportunity is open to a competent and trustworthy man, willing to travel and sell dryers, kiln equipment, clayworking machinery, etc. The applicant must have a clear record and a good personality. Correspondence on this subject, addressed to the Editor of "Brick and Clay Record," Chicago, will be received in confidence and forwarded to the reader who wants to add a good man to his selling force.

One Corner of the Forest Grill, Hotel Grunewald, New Orleans.

One of the numerous garden spots in New Orleans which will greet the eyes of the clayworkers who attend the convention. Note the brick-paved walk.

Chaldeans Will Take Big Crowd to New Orleans

JUDGING from reservations already made, there will be at least two hundred boosting clayworkers on board the Chaldean De Luxe Special, which leaves Chicago Saturday night, Feb. 28, at 10 o'clock headed southward to help swell the crowds and make the 1914 convention of the National Brick Manufacturers' Association at New Orleans a success.

These reservations are from all sections of the great Middle West and many clayworkers have planned to go considerably out of their way to join the Chaldeans and their friends at some point along the published route.

The special train, of course, will draw its patrons from those Chaldeans and other clayworkers who reside along the line of the roads over which it goes, or in adjacent territory where convenient connections can be made, but these early reservations indicate that not a few from the East and far West will go by a more indirect route and board the Special because it offers them an opportunity to help make the excursion on New Orleans a memorable one in the clay industry.

There is also a large number of reservations for clayworkers who will be accompanied by their wives and for these, a special sleeping car will be attached to the train.

This fact probably will be discouraging to those who have circulated reports that the Chaldean Special would be a "Stag" exclusively. The sponsors for the special train—the officers of the Supreme Temple—as a matter of fact, have planned to make the trip one of especial interest to the wives and families of those who are on the train and give the assurance that the decorum en route will be everything to be desired.

Special arrangements for the entertainment of the ladies of the party have been made, automobiles meeting the Special at New Orleans to take them to their hotels. Special committees will take charge of them upon their arrival and the Chaldeans assure them that nothing will be left undone to make their visit a pleasant one.

The Chaldean Special leaves Chicago over the Monon out of the Dearborn St. Station Saturday night, Feb. 28, at 10:05 o'clock. Special sleepers bearing some thirty or more Canadian clayworkers from Toronto will be added to the train before its departure, and the trip southward will be begun.

The first stop will be at Indianapolis at 3:20 o'clock the next (Sunday) morning. It is expected that a number of Indiana clayworkers will join the Special there and if there is a sufficient number who have applied in advance for reservations, a special Pullman sleeper will be set out on the track which may be boarded early in the evening and which will be attached to the Special without disturbing its occupants.

There probably will be many, not only from Indiana, but central Illinois, to take the Special at this point and there is little doubt that a special sleeper will be engaged. However, every Chaldean or clayworker who wishes to join the Special at Indianapolis is urged to

Round Trip Rates

Chaldean De Luxe Special Train
New Orleans Convention

Full information as to connecting lines, time of trains, railroad and Pullman fares, hotel reservations, etc., can be obtained by addressing W. P. Varney, 301 Chamber of Commerce, Chicago.

Pullman Rates

The Pullman rate (one way) for lower berth from the main points along the route of the Chaldean special follows:

Chicago	$5.50	Nashville	$3.50
Indianapolis	5.00	Decatur	3.00
Cincinnati	5.00	Birmingham	2.00
Louisville	4.50	Montgomery	2.00

Main Point Rates

The winter tourist rates—round trip, good for return until June 1:

Chicago	$37.40	Nashville	$25.00
Indianapolis	34.35	Decatur	25.12
Cincinnati	33.45	Birmingham	19.94
Louisville	30.15	Montgomery	19.12

Stations Off Main Line

As a means of giving some idea what the cost of the trip will be to New Orleans some of the centrally located points and junctions are given in the list below, with the round trip rate but not Pullman sleeper. The station mentioned in parentheses is where the train must be boarded.

Algona, Ia. (Chicago)	$45.12
Alliance, Ohio (Cincinnati)	43.75
Anderson, Ind. (Indianapolis)	35.75
Aurora, Ill. (Chicago)	37.40
Atlanta, Ga. (Montgomery)	29.54
Benton Harbor, Mich. (Chicago)	41.00
Bradford, Pa. (Cincinnati)	49.40
Brazil, Ind. (Indianapolis)	34.35
Bucyrus, O. (Cincinnati)	39.85
Canton, O. (Cincinnati)	42.95
Cincinnati, O.	33.45
Chattanooga, Tenn. (Decatur, Ala.)	25.00
Chicago, Ill.	37.40
Champaign, Ill. (Chicago)	$42.44
Cleveland, O. (Cincinnati)	43.95
Columbus, O. (Cincinnati)	38.05
Conneaut, O. (Cincinnati)	46.65
Creston, Ia. (Chicago)	37.40
Dayton, O. (Cincinnati)	35.65
Danville, Ill. (Indianapolis)	34.35
Delaware, O. (Cincinnati)	38.95
Des Moines, Ia. (Chicago)	41.70
Duluth, Minn. (Chicago)	55.45
Detroit, Mich. (Cincinnati)	43.75
Elkhart, Ind. (Indianapolis)	39.75
Fort Dodge, Ia. (Chicago)	44.00
Fort Wayne, Ind. (Indianapolis)	38.85
Fremont, O. (Cincinnati)	41.55
Galion, O. (Cincinnati)	40.05
Girard, O. (Cincinnati)	44.35
Indianapolis, Ind.	34.35
Jackson, Mich. (Cincinnati)	43.20
Knoxville, Tenn. (Birmingham)	24.40
Lancaster, O. (Cincinnati)	38.45
Luverne, Minn. (Chicago)	48.59
Martinsville, Ind. (Indianapolis)	34.35
Mason City, Ia. (Chicago)	44.48
Massillon, O. (Cincinnati)	42.95
Nelsonville, O. (Cincinnati)	39.65
New Cumberland, W. Va. (Cincinnati)	44.35
New Galilee, O. (Cincinnati)	44.35
New London, O. (Cincinnati)	41.85
Oshkosh, Wis. (Chicago)	44.00
Pittsburgh (Cincinnati)	46.35
Philadelphia (Cincinnati)	51.80
Peru, Ind. (Indianapolis)	36.85
Plymouth, O. (Cincinnati)	40.95
St. Paul, Minn. (Chicago)	50.80
St. Louis, Mo. (Nashville)	29.30
South Bend, Ind. (Indianapolis)	37.75
Tecumseh, Mich. (Cincinnati)	42.05
Terre Haute, Ind. (Indianapolis)	35.25
Tiffin, O. (Cincinnati)	40.55
Toledo, O. (Cincinnati)	41.55
Webster City, Ia. (Chicago)	43.18
Wellington, O. (Cincinnati)	42.45
Wellsville, O. (Cincinnati)	44.35
Wheeling, W. Va. (Cincinnati)	44.15
Willoughby, O. (Cincinnati)	44.65
Wooster, O. (Cincinnati)	42.25
Youngstown, O. (Cincinnati)	44.35

advise W. P. Varney, chairman of the transportation committee, 301 Chamber of Commerce Bldg., Chicago, at the earliest possible moment.

The next stop of the train will be at Cincinnati, the Special arriving there at 7:15 o'clock Sunday morning. The contingent from Ohio and the East is expected to join the excursionists at this point and ample Pullman accommodation will be provided.

Special sleepers from Cleveland and other points, already contemplated, will be attached to the Special at Cincinnati and if sufficient reservations have been made in advance, additional sleepers will be added to accommodate the crowd. The Cincinnati passengers undoubtedly will make up enough of a party to have a special sleeper.

The Special will leave Cincinnati over the L. & N. R. R. an hour later—at 8:15 A. M. and start for Louisville, the next stop. It will arrive in that city at 11:35 A. M., departing ten minutes later.

The itinerary includes a stop at Mammoth Cave, but whether time shall be taken from the trip schedule to visit this great wonder of nature depends upon the desires of the passengers. A vote will be taken on the train and if the majority wishes to stop, the published schedule will be followed. In this connection it may be well to explain that the visit to Mammoth Cave will require six hours and that if it should be decided to cut out this feature of the trip it will shorten the run to New Orleans that much, the Special arriving at its destination about 10 o'clock Monday morning instead of at 4:10 P. M., as scheduled.

If the popular vote eliminates the Cave trip those who wish to stop there may have this privilege on the return trip, but of course the return ticket must be purchased over the L. & N. R. R.

The next stop will be at Nashville and the remainder of the journey will follow the schedule published elsewhere closely, although, of course, if the Mammoth

Cave trip is excluded, the time will be shortened all along the route six hours.

Special arrangements have been made for the entertainment of the passengers en route. The Chicago Clay Club, which was organized two years ago to provide entertainment for the visitors at the two Chicago conventions in 1912 and 1913, will have charge of this feature. It has a surplus fund left from the previous occasions and proposes to spend it on the entertainment of the Chaldeans and their friends.

Chairman Binyon of the Clay Club even hints at a special tango car en route if there are enough ladies in the party to justify it and says that the plan would include not only tango teas en route, but also tango dances, in which case a special tango dancing car would be provided with an orchestra. This idea, however, is only a suggested one and its adoption depends entirely on the wishes of the ladies.

Aside from the buffet car and its ample provisions for entertainment, Chairman Binyon has planned several surprises on the trip in the way of entertainment and it is not likely that anyone will find time hanging heavy on his or her hands.

Several Chaldean songs have been especially written for the trip and a Chaldean yell adopted with which to enliven the trip to New Orleans and the stay in the Convention city. These songs will be sung en route and at every station and will become quite popular, no doubt, in New Orleans, wherever a group of clayworkers gather. One of these follows, special music being written for it:

ETERNITY!

Jolly Chaldeans are we—
Jolly Chaldeans are we!
We bake the clay
That paves the way
Throughout Eternity—
Throughout Eternity!
We make the brick
In houses stick
Throughout Eternity.
We make the tile
That last all while—
Throughout Eternity—
Throughout Eternity!

Refrain:
E-tern-i-tee! E-tern-i-tee!
No Frost, nor Flood, nor Fire,
Nor Time may dare conspire
To haste the day that routs burnt clay—
Eternity! Eternity!
Our challenge hurl throughout the world—
Eternity!

There are other stanzas to this song, copies of which will be printed and distributed through the train. Another song, which has special reference to the Chaldean bull—the emblem of the Order—is being written and special music will be arranged for it. It will be the official song of the Order.

The following Chaldean yell has been suggested as a good one for the boys to shout in New Orleans and en route:

B-double O! Boo! Boo! Boo!
Be a Booster, too!
Ride the Bull! Throw the Bull!
Unity! Pull! Pull! Pull!

Upon the arrival of the Chaldeans at New Orleans Fritz Salmen and others on the reception committee will meet the Special. Automobiles will be provided for the ladies of the party. Headed by a band of music and with banners and streamers flying, the Chaldeans will march to the Convention headquarters in the Grunewald Hotel, three or four blocks distant, just to let New Orleans and the rest of humanity know that boosters for burned clay are in town.

Here is the Time Table of the Special

The running time and points at which the train will stop will be as follows:

	February 28.	
Lv	Chicago (Monon)	10:05 P.M.
	March 1.	
Ar	Indianapolis	3:20 A.M.
Ar	Cincinnati	7:15 A.M.
Lv	Cincinnati (L&N)	8:15 A.M.
Ar	Louisville	11:35 A.M.
Lv	Louisville	11:45 A.M.
Ar	Glasgow Jct	2:15 P.M.
Lv	Glasgow (MCRR)	2:20 P.M.
Ar	M. Cave	2:55 P.M.
Lv	M. Cave	6:15 P.M.
Ar	Glasgow Jct	6:50 P.M.
Lv	Glasgow (L&N)	7:00 P.M.
Ar	Nashville	9:30 P.M.
Lv	Nashville	9:40 P.M.
	March 2.	
Ar	Decatur	1:10 A.M.
Lv	Decatur	1:20 A.M.
Ar	Birmingham	4:15 A.M.
Lv	Birmingham	4:20 A.M.
Ar	Montgomery	5:45 A.M.
Lv	Montgomery	6:55 A.M.
Ar	Georgiana	8:30 A.M.
Ar	Flomaton	10:00 A.M.
Ar	Mobile	11:50 A.M.
Lv	Mobile	12:00 Noon
Ar	New Orleans	4:10 P. M.

It is probable the Mammoth Cave trip will be omitted. If so it will shorten the trip time 6 hours.

From that moment on there will be not an idle moment for the excursionists. The convention meetings during the day, a smoker and general reception Tuesday night by the New Orleans entertainment committee, the Chaldean initiation and entertainment Wednesday evening, the annual banquet of the N. B. M. A. Thursday evening and the several side trips and excursions planned will keep the visitors busy, details of which are published in succeeding pages.

The ladies of the party will be taken care of by theater parties in the evening and special automobile trips during the day.

The Chaldean initiation will be held in the same large room as is used by the N. B. M. A. during the day for convention purposes. The Supreme Temple will have charge of this work and the regular initiation ceremonies will be suspended for the occasion. This is due, chiefly, to the fact that the long trip makes it impracticable to take the regular team along, many of the members being unable to go. Another reason is that the program of entertainment for the evening will be so varied and extensive that considerable time will have to be given to it.

The Chaldeans will furnish special guides during the week for escorting Chaldeans around the city on trips to see the many quaint places. Information about these trips and whatever other information may be desired will be found at the Chaldeans headquarters in the Grunewald Hotel, at which place the Supreme Keeper of the Tablets, Iverson C. Wells, will be ready to receive the 1914 dues of the members, to make out receipts, accept applications from new members and answer any questions that may be asked.

All information as to trains, schedules, rate of fare, Pullman rates, reservations, etc., on the Chaldean Special can be obtained by addressing W. P. Varney, 301 Chamber of Commerce Bldg., Chicago.

The Salmen Brick & Lumber Company's Plant at Slidell, La.

A Brick Plant in the Old South

CARRIED by train across a bridge seven miles in length—the second longest in the world that spans a body of water, will be the novel experience of the clayworkers who attend the New Orleans convention. The trip will be made by those who accept the invitation extended them by the Salmen Brick & Lumber Co., to visit the immense brick and hollow block plant operated by this concern at Slidell, a suburb.

The bridge is across Lake Pontchartrain and is but one of the many points of interest around that quaint old Southern city.

President Fritz Salmen, of the Salmen company, has planned to take all the visiting clayworkers to see just how the Southerner does things in matters of clay, and to prove further that there is really something to Southern hospitality he proposes to furnish a special train and do it right.

The trip will be made Friday afternoon and the visitors will have a decided surprise in store upon their arrival at the destination, for the Salmen plant is not only one of the largest in the South, but in the entire country.

Some idea of the immensity of the plant is gained, when its area—133 acres, is mentioned. Some idea of its importance is to be had when the amount of its monthly payroll—$25,000, is touched upon. Some idea of its capacity is understood, when to its daily output of 150,000 common and 40,000 dry-press brick, upwards of 100 tons of fireproofing is added for good measure. No idea, however, of the personalty of the men who built this enterprise and who today control it, can be gained, either from printed pictures, or written description—one has to come within the sphere of their personal influence to understand.

Started in 1884 by Fritz Salmen on a very small scale, the payroll consisting of one negro and a mule, the plant has grown until, today, 800 men are numbered among its employes. Some years later, Mr. Salmen was joined by his brother, Jacob, and in 1890 by another brother, J. A. Salmen, who built and operated a saw-mill in conjunction with the brickyard. In 1909, Jacob Salmen, who, at that time, was in charge of the New Orleans office, was killed in a railroad accident, his loss being a severe one to his partners and to all who had come in contact with him. He was a man of fine qualities, high character and had many worthy attributes.

Within recent years, F. W. Salmen, a son of the man who started the plant, has joined the Salmen forces, being secretary and general manager of the company. Those who know him intimately say that he is a worthy son of his father, more than which, in all probability, it would be hard to say. With him, in charge of the clerical forces, is E. F. Hailey, who, having been with the company upwards of twenty-five years, has seen the business grow from a small beginning into a tremendous commercial enterprise. Albert Baldwin, Jr., is treasurer and has been with the company many years.

Twenty skilled mechanics, machinists, boiler-makers and foundrymen are engaged continuously in the Salmen plant, under the direction of F. Byron Richardson, who is

Stiff-Mud and Dry-Press Machine House.

The 80 Chamber Haigh Continuous Kiln.

Fritz Salmen,
President, Salmen Brick & Lumber Co.

J. A. Salmen,
Vice-President, Salmen Brick & Lumber Co.

F. W. Salmen,
Secretary and General Manager.

an expert photographer, as the illustrations that accompany this article testify. He, with L. T. Miles, the general manager of all the manufacturing interests of the Salmen plant and H. H. Maysfield, the big, genial yard superintendent, make three of a kind that are hard to beat. The latter has been with the company eighteen years, rising to his present position by an abundance of energy, backed with a considerable amount of native shrewdness.

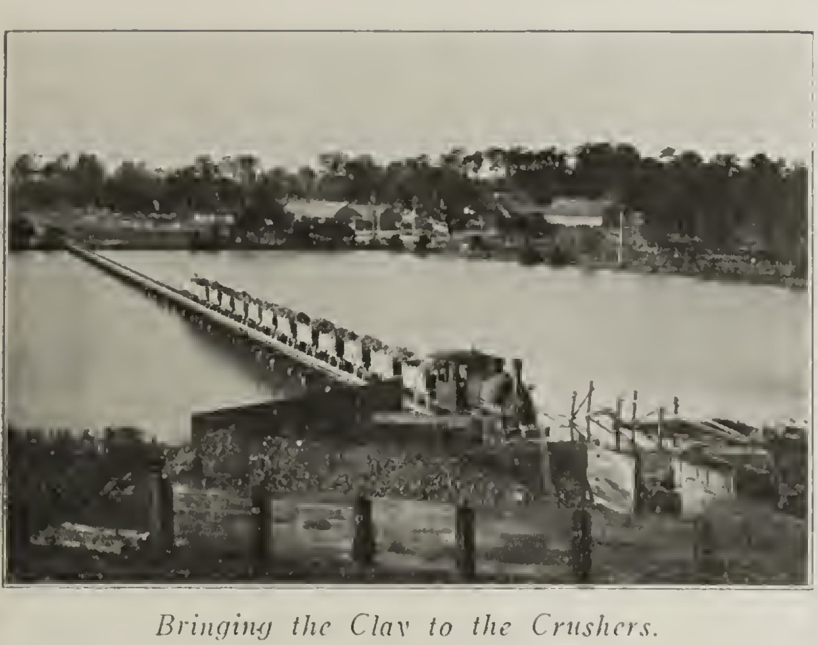
The New Orleans office, which is located at 716 Common Street, is in charge of H. Michel, does an immense business in the sale of brick, lumber, piling, cement, lime and other builders' supplies. Five yards are maintained in New Orleans for storage of the various commodities mentioned.

The plant is located at Slidell, a town situated about 30 miles northeast of New Orleans on the N. O. & N. E. Railway. The railroad recently built a station at Slidell, costing $25,000—an intimation that it believed the bustling little town had a future. In Slidell, by the way, the Salmen company has, from time to time, built houses for its employes, and it is said that it owns the bulk of the town. A "company store" run by the Salmen company employs twenty clerks and is the largest department store in the parish.

The machine equipment consists in part of two large Chambers auger machines, 4-mold Boyd dry-press brick machine, and a 4-mold Simpson dry-press brick machine. A 40-track steam dryer, designed by J. A. Salmen has

The Copping Brothers, Efficiency Experts.

H. H. Maysfield, Foreman of the Brickyard.



Bringing the Clay to the Crushers.

General View of Shipbuilding Plant.

been used, but it is now proposed to use waste heat from the continuous kiln and two experimental tracks of the L. E. Rodgers type are nearly completed.

Five up-draft kilns, with a capacity of 900,000 each are supplemnted by one 80-chamber Haigh continuous and a 30-foot diameter down draft kiln. Coal, oil and the refuse from the saw-mill are used as fuel.

The clay pit is about three-fourths of a mile from the works and is drained by a 12-inch centrifugal pump, driven by a 14x16 high pressure engine.

The Marion steam shovels work in this pit, busy loading fifty clay cars of two yards capacity each, which are drawn in trains of twelve to thirteen cars each, by two small steam locomotives. The clay is hoisted by drum and cable up the incline to the crushers.

The brick and tile are loaded from both sides of the kilns—on the east to railroad cars and on the west to barges for water shipment. The brick that are loaded on the barges are crated, each crate containing a thousand brick.

The company owns a number of tugs, barges and launches, and makes water shipment to New Orleans, Gulfport, Mobile and other nearby ports. In addition to its clay products, the company ships by water, annually, many millions of feet of lumber from its saw-mills.

The fire protection is another matter of interest. Two pumps of 14,500 gallons per minute capacity are ready to discourage any blaze other than that under the boilers or in the kilns. A sprinkler system, with automatic alarms and signals is tested weekly.

F. Byron Richardson, Master Mechanic

The works are lighted by electricity, generated in the company's own power plant.

The foundry is equipped for handling castings up to two tons in weight, and for welding by the Thermit process. In the blacksmith shop an 800-pound steam hammer can handle work of some considerable size.

In addition to the brick plant, the Salmen Brick & Lumber Company owns two saw-mills, two planing mills, and logging camps, in connection with which its operates four standard gauge locomotives and sixty logging cars, running on the company's own track, which connects with that of the N. O. G. N. R. R. It maintains a shipyard, fully equipped for building Mississippi River packets and other river vessels. It has two pile drivers, one floating, the other stationary.

The success of the hollow block department of the Salmen plant is largely due to H. & B. Copping, who went south from Kankakee, Ill., when this branch of the industry was started at Slidell. The gulf clay is well known to be a difficult material to handle in ware of this character, and the Coppings have proven their worth by turning out a superior material with a low cost.

The trip to this plant will be long remembered by the clayworkers who join the party that will leave New Orleans, during the convention of the National Brick Manufacturers' Association in early March.

Eastern Paving Brick Association Elects Officers.

At the annual convention of the Eastern Paving Brick Manufacturers' Association, held in Bradford, Pa., Feb. 5-7, the following officers were elected to serve during the coming year: President, C. E. Foster, of Bradford, Pa.; first vice-president, J. B. Hammond, of Bolivar, Pa.; second vice-president, C. A. Young, of Pittsburgh, Pa.; secretary, G. W. Lenkerd, of Indiana, Pa., treasurer, C. P. Mayer, of Bridgeville, Pa. Twelve directors were elected, the officers mentioned and M. E. Gregory, of Corning, N. Y.; John Hall, of Westport, Md.; W. M. Hodges, of Bradford, Pa.; A. S. McCombe, of Akron, Ohio; J. B. Nicholson, of Toronto, Ohio; D. Warren DeRosay, of Corry, Pa., and F. G. Porter.

A report of the convention proceedings will appear in the next issue of "Brick and Clay Record."

IF YOU INTEND TO TAKE THE CHALDEAN SPECIAL TO NEW ORLEANS
Either at Chicago or at
some point on the way
MAKE SURE OF YOUR ACCOMMODATIONS
By writing W. P. Varney,
301 Chamber of Commerce, Chicago, Illinois,
AT ONCE—DO NOT DELAY.

Officers Canadian National Clay Products Association—Reading left to right: Gordon C. Keith, Toronto; W. McCreedie, Lyons, Ont.; Charles A. Millar, Toronto; John R. Walsh, Toronto; Dan A. Lochrie, Toronto; John S. McCannel, Milton, Ont.; W. H. Freeborn, Brantford, Ont.

Big Delegation of Canadians to Take Chaldean Trip

TWO special Pullman sleepers, bearing some thirty or more clayworkers from Canada, all members of the Canadian National Clay Products Association, will leave Toronto Friday afternoon, at 4:30 o'clock, February 27, over the Grand Trunk road. The destination of these Canadian boosters will be Chicago, at which point they will arrive early Saturday morning.

Following a day's sight-seeing tour in this city, the visitors will join the Chaldean DeLuxe Special train for New Orleans that evening and help boost the attendance at the Convention of the N. B. M. A. and kindred organizations.

This decision was reached at the twelfth annual convention of the Canadian Association, held at Toronto, January 27-30, and followed an invitation extended delegates by C. L. Rorick, manager of "Brick and Clay Record."

It will be remembered that one of the most pleasing features about the Chicago convention of the N. B. M. A. last year was the visit of the Canadian delegation, numbering some thirty or more. The visitors brought with them the famous Toronto Kilties Band and were one of the liveliest delegations in attendance.

President Millar, of the Canadian Association, who also is the Canadian vice-president of the N. B. M. A., will conduct the excursion of his members in person.

Special efforts will be made by the Ancient Order of Chaldeans to make the Canadian visitors have a pleasing journey and a good time at New Orleans, and the entertainment committee of the Chaldean Special will have something extra for these guests.

The Canadian convention this year was one of the best ever held by the association. There was a larger attendance, great enthusiasm and many problems about the plant were discussed in well-prepared papers by capable speakers.

A number of United States visitors were present, among them being Prof. Edward Orton, Jr., of the Ohio Ceramic School. The following representatives of the machinery manufacturers of the States also were present:

American Clay Machinery Co., Bucyrus, Ohio—Messrs. Merkle and Haigh.

The Bonnot Company, Canton, Ohio—A. W. Aylesworth

John C. Boss & Co., Elkhart, Ind.—J. C. Boss.

Brown Instrument Co., Philadelphia, Pa.—J. P. Goheen.

J. D. Fate Company, Plymouth, Ohio—George B. Drennan.

E. M. Freese & Co., Gallion, Ohio—E. L. Hess.

C. W. Raymond & Co., Dayton, Ohio—F. A. Elliott and B. H. McElroy.

Oliver Baird, of the H. C. Baird Co., of Parkhill, Ont., and A. Berg, John Berg and Sidney Stillwaugh, of the Berg Machinery Mfg. Co., Toronto, were among the Canadian machinery men in attendance.

The convention was held in the King Edward hotel. The delegates were called to order Tuesday afternoon, Jan. 27, by President Charles A. Millar, who delivered a brief address of welcome.

Controller J. O. McCarthy welcomed the delgates to Toronto and spoke most hopefully of Canada's future and particularly of the clay workers.

John S. McCannell, of the Milton Pressed Brick Co., responded to the address of welcome on behalf of the Association.

DANIEL LOCHRIE

W. H. Freeborn, past president of the Association, and Dan A. Lochrie both talked briefly on the work of the convention, Mr. Freeborn particularly as to the provisions for entertainment.

The president's report was next on the programme, but Mr. Millar said his report was embodied in his opening address and that he had nothing further to say. He again thanked the delegates for their presence and hoped that the highest enthusiasm would be maintained throughout the sessions. Secretary-treasurer John R. Walsh read his report as follows:

My report is not long and, as Mr. Millar has taken a lot of the words out of my mouth, I have not very much to say. We have had good support this year. We have a number of new members with us and we hope to have a lot more this year.

There is only one way to get this association going. Every one must work with the officers and drum up his neighbors to come to the conventions. When you go home, I want you to drum it in. We have tried hard to get a good programme and, I think you will agree with me, we have succeeded. We have double the number in attendance that we had last year and I hope that next year this year's numbers will be doubled again.

I think it is only right that any members that do not come to the convention should pay their dues, in spite of their non-attendance.

The financial condition of your association is as follows:

Cash received	$147.49
Expenditures	$ 52.40
Cash on hand	$ 95.09

The adoption of the by-laws came up for discussion and caused some keen controversy. George Crain brought up the point that the by-laws of the association were not made up in the regular way and were not put through in a legal manner.

D. O. McKinnon—Mr. Crain is wrong, as he usually is. These by-laws, when they were drafted, were put on the floor of the house, ripped to pieces and made valid.

Gordon C. Keith—Your secretary and myself were appointed to get together and revise the by-laws. We did this and they were presented to the executive committee, which passed them and stated that they should be presented to the membrs of the association for their approval at this meeting.

The by-laws, as amended, were then read, and Angus German, of the Sun Brick Co., Toronto, made a motion as follows:

That an additional clause be added to the constitution to read: "That at any future date any amendment to the constitution which, in the wisdom of the executive committee is thought advisable, be written out and at the first meeting of the association be handed around in printed form to the members so that they can thoroughly understand what is up before them and know what to vote on."

This motion was seconded by Albert Neal, Kingston, Ont.

Mr. German then moved that the by-laws as amended be adopted. His motion was seconded by Mr. Smith.

Mr. Crain started further discussion, which brought President Millar to his feet to say:

The executive committee has spent considerable time on the constitution and I want to say that we have altered it to suit this association to the best of our ability and, if you are satisfied with what we have done I am going to ask you to second the motion made by Mr. German.

Mr. Smith again seconded Mr. German's motion and it was carried practically unanimously. The election of officers was then taken up.

President Millar—Gentlemen, we are holding the election of officers on the first day of the convention this year. In former years, this has always been done on the last day but we have found that many of the delegates do not wait and as this is an important matter, we will take up this matter now. We are now open for nominations.

J. S. McCannell—I have much pleasure in nominating President Millar for re-election. I realize that this is an unusual honor in this association, but one well-conferred.

Mr. Millar was elected by acclamation and thanked the members for the honor conferred upon him.

H. Stephens, Portage la Prairie, Man., was nominated by Dan Lochrie for first vice-president and was elected by acclamation.

J. S. McCannell was nominated by Gordon C. Keith for second vice-president and was elected by acclamation.

J. E. Frid, Hamilton, Ont., was nominated for third vice-president by D. O. McKinnon and elected. Other members nominated were W. Moody Highgate, by W. H. Freeborn; John Miller, Vancouver, and Dan Lochrie, Toronto, but the nominators of these gentlemen kindly withdrew their nominations in favor of Mr. McKinnon's.

John R. Walsh was re-elected without opposition as secretary-treasurer.

For executive officers—Dan A. Lochrie, by Gordon C. Keith; Chas. Lewis, Milton, by A. Berg, Sr.; Angus German, Toronto, by Frank Elliott; Gordon C. Keith, by Dan. A. Lochrie; W. McCredie, Lyons, Ont. All were elected by acclamation.

Before the first session closed it was moved by W. H. Freeborn and seconded by Frank Elliott "That The Canadian Clay-Worker be made the Official Organ of the Canadian National Clay Products Association." Carried unanimously.

The meeting then adjourned until Wednesday morning at 10 o'clock.

Wednesday morning's session opened with a very able paper by R. H. McElroy, of the C. W. Raymond Co., Dayton, Ohio, on "Producer Gas-Fired Continuous Kilns." Mr. McElroy outlined the advantages of kilns fired in this manner and gave interesting results obtained through this method in the United States. He pointed out the ease with which gas-fired kilns are cleaned and referred to the absence of dirt around the yard. "Producer gas," he said, "is justified because it is extremely economical in labor, is easily handled and burns uniformly. It is, however, impossible to get a kiln to give all No. 1 hard ware but under actual test an Illinois gas-fired kiln averaged 90 per cent good stuff. This cannot be said of a coal-fired kiln."

The following discussion then took place:

Q.—Did I understand Mr. McElroy to say that his men could go out and feed the producer without getting their collars dirty?

A.—This can be done if they do not stay too long on the job.

Geo. Crain.—I would like Mr. McElroy to say whether or not I understood him. Did I understand him to say that in the down-draft kilns burned with coal you could not produce more than 80 per cent hard burned brick?

A.—That would mean paving block entirely.

Mr. Crain.—In my down-draft kilns I burn from 153,000 to 155,000 brick and I have used about 10 cords of wood to water smoke, running from 600 and less than 700 pounds of coal per thousand in semi-vitrified brick. I have counted them and had them piled in No. 1, No. 2 or No. 3 grade and have had a few that would not pass for these stages. I went through Ohio and New Jersey, where, I am told, there is no shale clay. In New Jersey I got two carloads of brick made of shale clay that were No. 1. I have used them in contracts that I had. I went through and examined many

Group of Some of the Delegates and Officers in Attendance at the Canadian National Clay Products Association Convention in Toronto, Jan. 27-30. This photograph was taken before a full registration had been secured.

kilns. Some owners refused to let me see the kilns, but I told them that I was not going to build kilns in the United States, and that I wanted to get information. I then went through and they gave me blue prints of the kilns. I came home and, being a builder and architect myself, I drew my own plans for the Beamsville Brick & Terra Cotta Co. with the result told you. I burn the down-draft kilns and we put through about 150,000 and out of the lot we culled only 4,000 to 5,000. The rest will pass for No. 1, No. 2 or No. 3 and were done on 10 cords of wood to water smoke the kiln and from 600 to 650 lbs. of ¾ lump coal to semi-vitrify them.

A. F. Greaves-Walker, ceramic engineer at the plant of the Sun Brick Co., Toronto, gave a paper on "Brick Yard Kinks" and gave remedies for the intricate problems that brickmakers are running across every working day in the year. He illustrated his talk with drawings and brought out the troubles that arise in the cleaning of flues, the building and operating of elevators, bucket belts, belt conveyors, the use of dry graphite, cars, dryers and a host of other problems. Just as an instance of the problems that arise, Mr. Greaves-Walker said:

It is the custom among Canadian plants, especially where the bush is near, whenever a pug mill support is needed, to go out into the bush and cut a stick, neglecting to cut the bark off. I found one place where that rule had been followed almost invariably and found that some of the sticks that had been cut down for some time were even sprouting. I tried to show them a better method. I found some 6 in. pipe. I flanged this pipe and used the holes in the bottom flange to anchor the bottom of the flange to the posts in the floor. The flange at the top can be used in the same way. Before putting this pipe up, I filled it with a thin cement and sand slur. I believe this will hold up the hinges of Hades and this is a good way if you want a neat and cheap job around the factory.

This is only a sample of the kinks Mr. Greaves-Walker told about.

Prof. Coleman gave an interesting talk on "Formation and the Different Kinds of Clay."

The first paper at the afternoon session was one by Prof. Ed. Orton, Jr., Dean of Engineering, Ohio State University, Columbus, Ohio, on "Ceramic Schools and Their Value." Professor Orton gave a brief history of the school since its inception and outlined the good work that it has done. He gave figures and instances to show the success with which graduates of his school have met and stated that when a similar course was established in Toronto in connection with the university or some other institution, Canadian clayworkers would receive an enormous benefit.

"Lame Ducks in the Clay Products Business" was the subject of an interesting address by Professor Keele, of the Dominion Geological Survey.

M. B. Cheney, Ceramic Engineer with Shale Products, Limited, Inglewood, Ont., gave an interesting address on bookkeeping systems that can profitably be employed by brickmakers in keeping track of work around the plant. He illustrated his talk with sketches of the different forms, filled in.

John F. Wilde, Ceramic Engineer with the E. H. Crandell Pressed Brick Co., prepared a paper on "Types and Construction of Kiln Furnaces." Mr. Wilde, however, was unable to be present at the convention and his paper was read by Gordon C. Keith. In his paper, Mr. Wilde dealt with the advantages and disadvantages of five different types of furnaces, horizontal bars, sloping and horizontal bars, dead bottom (a) solids and (b) gas and liquids, forced draft and fire box for oil or gas. Sketches were prepared to show the different designs and the working of each kind. This discussion followed:

Professor Keele.—There is a great diversity of practice in burning and fuel is becoming a very important item. I go to one yard and I see them burning with the doors on their fireplaces and getting satisfactory results and I go to another place where they burn the same kind of material and see them using no doors on their fireplaces and allowing the air to go over the top of the coal. There surely must be something wrong. I was not able to get the amounts of coal used in each case, but it seems to me that the heating of all this cold air must be costly.

A Delegate—I now burn without doors. In the sewer pipe we always used to use doors but we found that even an old burner will sometimes let his fires get too hot so the way we do now is to have a peep hole above our fireplace, just high enough to permit a man to see through. A good burner becomes accustomed to the heat by the appearance of the fire and if he sees it is getting too hot, he draws a little coal from the top of his fire, allowing sufficient air to get in until he sees that the air is changed and then he coals up again.

Mr. Ball, Russell—There are many views on this subject and many results have been obtained. It is pretty hard to say what is required to suit certain conditions. For myself, I have absolutely no use for horizontal bars; I mean of the kind with a door immediately in front of the bar similar to a boiler furnace. With this kind, you have to open the door and allow a large amount of air to pass through while the fireman is coaling up. In many cases, in putting in the coal in these particular furnaces, there is not only a large amount of air passes through but it is generally considerable time before the coal that has just been applied begins to supply additional heat to that already on. You get a fire that is burning well, the fireman comes along at an indefinite time, opens the door, the fire may have got low, in rushes the cold air, on goes the fresh coal and it is some time before the kiln is back to its normal condition. Take a boiler with a safety valve that blows off at 125 pounds. Immediately she begins to sing, the first thing the fireman does is to open his doors and let the air rush through. Just as soon as the air rushes in, the boiler is cooled and the safety valve closes. The same thing applies to a furnace.

Take our firebox without a door. Applying the coal to the top of the fire, it works on the same principle as the sloping bar. You require a certain amount of cold air to pass in along with the carbon that is issuing from the coal to bring about ignition. Take a newspaper, fold it in the shape of a bag that you used to buy candies in when a kid, light it and you will see smoke or gases rush from the top. Personally, I do not like fire doors. I like a firebox you can feed from the top and move the clinkers from the bottom without disturbing the fire. One place I worked had 29 kilns, each with a firebox of this description. I like them because I can get a steadier heat and a more constant heat with fireboxes of this description than with the ordinary furnace.

Prof. Wickens—The same underlying principles will do for burning brick as for any other material and if you get the correct amount of air going through, you get a perfect combustion. If you get too much, you cool your fires and your gases escape and you do not get the same amount of heat. A man who puts a hole in the fire wastes coal. If you want to burn coal to good advantage, you must supply it with the right amount of air. You can do this by letting the air through the coal in over the top of it. The air carries the oxygen that makes the fuel burn and some of the gases that leave the soft coal will be fired if there is a small amount of air allowed to pass over the top. In as far as supplying the amount of air to burn a given quantity of coal at a given time, it is an easy matter to tell just how to do it. In order to get a perfect combustion, 12 pounds of air will burn one pound of coal and it will burn it into a perfectly white heat. Unfortunately, we cannot get all the air to mix with all the coal and we have to give more air than the requisite amount, probably one and one-half times. We always have this loss. If the amount of air is supplied properly to the coal and you regulate early enough, i. e., before your fires get too hot, you will get results. You can do this either by damper or by throwing coal on, but I think it would be cheaper to put on a few shovelfuls of wet green coal rather than punch a hole in the middle of it.

W. McCredie—I feel satisfied that if we could only get some way whereby we could do this thing scientifically, it would be one of the greatest savings to the brickmakers of the Dominion. I gather from what the Professor has said that if we could weigh the coal and weigh the air we could accurately figure on the proper combustion. We can weigh the coal but I am blamed if I know how we can weigh the air. Is there any possibility that we fellows from the backwoods can get some idea of how much air to let into a kiln? As I see it the quantity of air passed into a kiln is largely controlled by the height of the stack. In another way by the opening in the grates and in another way by closing or opening your doors. If this is the case it comes down to this, that we have to depend on our judgment and that is largely guess work. We have heard a good deal about different types of fire boxes and all that sort of thing, but I want to say that I have been in the business for 43 years and have information in my head about how much air to allow for an economical burn. But I cannot hire men who know. It seems to come down to the fact that a man must know his kilns and watch them himself.

Mr. Neal—Did you have an under-draft when you burned your kilns without doors?

A.—Yes. Have no door at top or front. but when a shovelful of coal is put on, it acts as a door from the top.

Miller Gibson, of the National Fireproofing Co., gave an interesting account of the experiences he had had with different kinds of furnaces.

John C. Boss, of Elkhart, Ind., then made the statement that 12 pounds of air would do for a steam boiler but would not do where clay products were being burned. He stated it would take five or six times this amount on account of the fact that the ingredients that go to make up clay products are so filled with carbon. Much of the heat that is in a kiln, he said, comes from the carbon that is in the clay.

His statement brought the delegates to their feet and a warm discussion seemed imminent, but, on President Millar's suggestion, it was decided to hold this over until next morning as the hour was late and the members wanted to get away. Thursday morning the discussion was renewed when President Millar introduced the subject thus wise:

Mr. Boss' statements of last night seem to have aroused considerable controversy among the members and I would suggest that we continue the discussion for a few minutes this morning. If I understand it rightly, Mr. Boss said that most of the clay contained about 65 per cent of carbon. This means that you do not have to shovel in much coal; simply put in some paper, light her up, throw in a piece of a slab and the carbon does the rest.

Frank Elliott—Mr. Boss said that between 60 and 65 per cent of the heat generated in the kiln was from the carbon in the clay and not from the fuel in the fireboxes. Many of the brickmakers here have been discussing the question and I think they would like to hear something more in connection with burning and fireboxes.

Professor Keele—The President has asked me to say something about the carbon contained in clays. I remember when we were investigating the clays of Nova Scotia that there were some that were carbonaceous and that gave trouble in the manufacture of sewer pipe. We found that if fired too fast, the clay burned a black core. The trouble was traced to the carbon interfering with the oxidation. If the firing is pushed too fast, you get the swelling. We took some of these clays and had them analyzed for carbon content. They analyzed, as far as I can remember, 1.5 per cent of carbon and I think this is about as high as we get in this country. We have shales that run rather high in carbon but they are quite out of the question in the manufacture of clay products. If you run as high as 50 per cent of carbon, it is a fuel and not a clay. The carbon content in our clays is small and the amount that would give trouble is very small. Carbonaceous clays do not, as a rule, run more than two per cent. The heat generated from the carbon content of the clay is a small item indeed. There are, I'll grant you, exceptional cases. There are some cases that run 10 per cent, not more, but such cases are few and brick men avoid them.

Miller Gibson, Ceramic Engineer, of the National Fireproofing Co., Toronto, delivered a paper on "The Different Types of Fire-Proofing, Their Manufacture and Burning." Mr. Gibson outlined the difference between structural terra cotta and hollow tile fireproofing. To show the field the fireproofing business covered, he stated that the ordinary well-equipped factory manufacturing this product manufactured from 250 to 400 different types and sizes of ware, ranging in dimension from 1x12 in. to 16x12 in. and in length from 2 in. to 40 in. If the field of fireproof house construction is included, there must be added to these figures from 50 to 75 more different types. Mr. Gibson dealt extensively with the various types of dies required and threw a scare into some members who contemplated entering the fireproofing field, when he stated that each die cost in the neighborhood of $200. With about 300 dies required, this means an outlay of $60,000 at the outset for dies alone. The method of manufacture was dealt with fully, from the preparation of the clay to the time the finished product was piled in the yard. He dwelt with emphasis on the importance of setting the tile in the proper manner. In closing, Mr. Miller recommended the adoption of standards in the manufacture of brick and hollow tile and said that he hoped that before very long Canadian manufacturers would get together and do something along this line.

President Millar—Mr. Gibson has indeed given us an excellent paper. Cutside of the Don Valley Co., there has been little fireproofing made in Canada and very few of us have had anything to do with it. However, I hope this is not the last we shall hear and I am sure we shall see a lot of it in the near future. I thought I would like to go into the manufacture of it but since hearing from Mr. Gibson that the dies cost $200 apiece, I think I will stay in the brick business, where I can get a die for $3.15. (Laughter.) I might say that this is the first time the National Fireproofing Co. has ever allowed one of their men to speak at a convention or any other gathering and our association should feel honored. If all the company's men are of the calibre of Mr. Gibson, I think they should be censured for keeping such good things to themselves. (Laughter.)

"Tile" was the subject of a paper given by Prof. W. H. Day, of the Ontario Agricultural College, Guleph, Ont. His remarks dealt largely with the use of tile on the farm and he deplored the headway that the makers of cement tile had made over the clay product. He gave figures gleaned from tests made of the two kinds and showed that the clay was infinitely superior to the cement kind and urged the makers of clay tile to get into the game on a larger scale and make their product the one in general use. He stated that there were farmers who wanted to tile-drain their land but could not do so simply because they could not get the tile. This, he said, is not as it should be and it is up to the manufacturers of clay tile to get busy and make themselves known.

Considerable discussion followed this paper.

Q.—What is the comparative life between the clay and the cement tile after being laid in the ground for a number of years?

A.—Cannot say for they have not been used long enough to make determinations of this nature. However, some American firms attacked the cement tile on the ground that the cement would dissolve out and leave nothing but a streak of sand in the ground. I read this and warned our farmers not to rush too fast in the use of cement tile and started an investigation into the subject. I am satisfied now, after four years' work, that the alarm was greater than was necessary. Experiments have been made with small samples. We took three whole tile and placed them in running water for 14 months. At the end of that time, two were heavier and the other was a shade lighter. So I am satisfied that if cement tile are well made they will not crumble in a few years. I cannot say, however, that they will last as long as clay. It will take long experience to give a definite answer to this question.

Mr. Gibson—You spoke of the relation between the porosity and the density in regard to its crushing strength. You find soils both acid and alkaline. What effect would these acids have in corroding or eating into the tile?

A.—We have made some acid tests but I have not the figures with me. We made tests on cement tile and the action of the acids was quite marked. It is not so marked on clay.

Q.—Did you find that the acids would eat more rapidly into the cement than into clay?

A.—Yes, but the only acid soils we have in Ontario are muck soils.

Q.—Are you advocating a porous tile in preference to a vitrified one? I have been making tile for a number of years and about 10 years ago I found the farmer wanted a porous tile because he wanted the water to go through the tile.

A.—No. Our percolation test has proved that it takes 20 days to fill a tile with water, so it would take a long time to drain land entirely of water. I overlooked mentioning the relationship of porosity to the effect of frost. We can see why porous tile is more subject to injury by frost. If a porous tile lies on the ground and absorbs all the water it will, while there is a certain amount of air in it, it freezes quickly. If a vitrified tile lies on the ground and becomes saturated with water, there is some air left in the tile, and from the comparison of the Kingsville tile and others, I have found that the percentage of air in the vitrified tile is higher and, consequently, when the sudden frost comes and it seals that tile all around, there is water inside which is not frozen. In the vitrified tile, as the water inside freezes, it compresses that air and consequently you do not get so great a pressure outwards when the water freezes. In a porous one, the expansion of the ice more than overcomes the small amount of air that is left in and consequently a shell is shoved out along the outside. A tile that is lying on the ground is, of course, more subject to freezing than one that is under the ground. When the freezing begins to take place on the top, the tile underneath is still unfrozen. This shows the advantage of having low absorbent tiles.

A Delegate—In regard to the experiments in Iowa. These were made on account of the great loss to the farmers of the Far West, especially through the disintegration of cement tile when placed in ground high in alkali. I have seen thousands of dollars go to waste through this cause.

Professor Day—In speaking to cement tile men, I have warned them that they must make good tile if they are going to enter this market. And, by the way, there are some clay tile on this market that are not good tile. I know of one yard where they leave their tile out all Winter and I have found about 25 per cent of them broken in the Spring, by the frost. This should not be because it is bound to happen when some farmer is forced to leave his tile on the ground for a short time. I would agree with your suggestion that there be some standard with regard to tile.

Q.—Were the cement tile with which you experimented samples that were actually going into the ground.

A.—Yes. They were commercial tile furnished us by different yards, or else tile manufactured by ourselves at the college.

During Professor Day's paper, President Falconer, of the University of Toronto, and Dean Galbraith entered the hall and President Millar introduced them. Both made short talks on the new ceramic department of the university. The discussion that followed was animated at times.

D. L. Reagan, president of the Hocking Valley Clay Products Co., Columbus, Ohio, makers of "Greendale Rugs," arrived during the discussion and responded to President Millar's request to speak a few words.

Theo. A. Randall, Secretary of the National Brick Manufacturers' Association—You will believe me when I tell you that I feel very much at home here. The discussions that have occurred here take me back to those earlier days of the enthusiasm of youth in association work. I congratulate you on the marked growth of your association. It certainly is very gratifying. I want to say a word in regard to one or two things that came up here this morning as to standards and sizes. The National Brick Manufacturers Association was organized 27 years ago for the reason that we might, by getting together, do away with the continual experimenting which was costing us so much in the United States. Our association has covered that ground in part and I would suggest that your organization might save yourselves some time and trouble by investigating our methods. The standard size of brick has been determined. Our annual report gives it. So, in other matters of standardization, your committee can profit by what we have done and we will be only too glad to help you in every way we can. I know you are hungry, and that I will have a chance to look at your faces again, so I will be brief and thank you.

There was no session on Thursday afternoon and many of the visiting delegates took the opportunity to look around the city and visit the numerous brick plants in and around Toronto.

Thursday evening a banquet was held at the Prince George hotel, and about 125 were present. Dan Lochrie acted as toastmaster, and with him in the chair, an excellent menu provided, splendid talent and the best of speakers, the evening was all that could be desired. Those taking part in the programme were Messrs. Macdonald, Cowan, Rigby, Moore and the Ruthven Macdonald Quartette.

Secretary Walsh and Gordon C. Keith showed that their efforts in the song-writing line were on a par with Harry Von Tilzer when they composed a song to be sung at the banquet.

Friday morning the convention opened at 10 o'clock. D. O. McKinnon, of the "Canadian Clay-Worker," delivered the first address, "History of Our Association." He was followed by M. E. Gregory, president of the Brick, Terra Cotta & Tile Co., of Corning, N. Y.

The morning session closed with a talk by Herbert N. Casson, vice-president of the H. K. McCann Co., of New York, on "Advertising." This proved to be one of the real treats of the convention. Mr. Casson also talked at the noon-day luncheon.

The convention closed Friday afternoon with the following programme:

"The Possibility There is in Advertising Clay Products," A. L. McCredie, Toronto.

A paper by M. B. Cheney, Ceramic Engineer with Shale Products, Ltd., Inglewood.

"The Making and Burning of Tile," by W. H. Moodie, Highgate, Ont.

In the evening a theater party was given and the delegates started on their homeward journey.

Architect Claims Craftsmanship Dying

William L. Price, a prominent architect, in a recent paper read before the Philadelphia, Pa., T-square Club, described the trend of modern architecture as toward diagrams and away from craftsmanship. There was a tendency, he said in studying the work of the Old World architects, to find out what they did, rather than what they wrought. He said: "We lack sincerity in our present day expression. We detail our high buildings as if every foot were directly before us, while we should consider that the base, to be successful, must be treated to be seen from across the street, and the towering top from across the city.

"And what of our ornament? It is to produce color and values, and we add ornament and projections simply to obtain the color resulting from the contrast of light and shade. Yet even this process fails when these details are so far removed from the eye that the effects are lost through atmosphere. The forms become unintelligible and the color dissipated. Then why not, to get the effect we strive for, adopt the use of ceramics? It is true that at a distance color and fine detail will not combine, and detail alone is lost in indefiniteness. Color alone we can fall back upon. Then when we make use of this judiciously, applying it in such mass and tones as successfully combine to produce a harmonious feature in design, we will arrive at a successful architectural treatment of our high structures. There is vast opportunity still to express our architecture as a living art. The educated man's idea of art is to pursue the art that has been, while the artist and craftsman are forever searching for the art that is going to be."

Miamisburg Comes Out for Good Roads.

A mass meeting of the citizens of Miamisburg, Ohio, was held Monday, Jan. 20th, for the purpose of organizing a branch of the Ohio Federation of Good Roads. Sixty-one members were secured and a meeting to perfect the organization will be held in a few days.

Reserve Your Berth

If you are going to take the Chaldean Special to New Orleans you must write W. P. Varney, 301 Chamber of Commerce, Chicago, your intentions.

Plan New Central West Association

PLANS for a Central West Association, comprising the states of Iowa, Minnesota, Illinois, Wisconsin and Indiana are under way by the clayworkers of these states, to be known as the Society of Clay Products Manufacturers. A meeting will be held in Chicago, Thursday, March 19, at 10 A. M. at the Hotel La Salle for the purpose of discussing the organization plans.

The proposed new society of clayworkers is the outgrowth of the decision of some of the states mentioned to incorporate in their own organizations the principles of the open-price stanadard.

The Iowa Clay Manufacturers' Association decided to work along the open-price line at its annual meeting in Des Moines last December. The Northwestern Clay Manufacturers' Association, at its convention recently held in Minneapolis, and the Illinois Clay Manufacturers' Association, at its meeting at Champaign a few weeks ago, took similar steps.

Each of these organizations appointed special committees to make investigations and report organization plans. The committee from the Illinois association, in which body the idea for the Central West Association originated, has called a meeting of the Illinois clayworkers on the date specified above and has extended an invitation to the clayworkers of the other states.

This meeting, probably, will be one of the greatest gatherings of clayworkers ever held in Chicago outside of the National Brick Manufacturers' Conventions and, as a result of it, there is little doubt but that some definite plans will be determined upon along the lines suggested.

It is argued that the co-operation of the larger territory in the proposed open-price association will be far better than the separate state organizations first proposed, as it will not only lessen the cost of the membership, through a reduced operating expense (as only one secretary will be necessary), but as the various territories overlap in these states, it will give a better and stronger organization.

The committee which has called the meeting in Chicago, has issued the following call through Secretary Huckins of the Illinois Clay Manufacturers' Association:

> The open-price policy is of the greatest importance to every clay manufacturer in the Middle West section along with all dealers and shippers into this territory.
>
> On March 19th, 1914, at 10 A. M., there will be a meeting at the Hotel La Salle in Chicago to consider the open-price policy, as originated by Mr. Eddy and covered in his book 'The New Competition." There has been a crying need for something of this character and we assure you that there is no desire nor will there be anything done at this meeting which is not perfectly legal and logical.
>
> We already have the support of some in each line of manufacture and dealers and shippers of such standing as the Chicago Face Brick Association. This will help the small and large man in this industry and will do more to bring clay products into its own than any movement of recent years.
>
> This is of the greatest importance and we ask you not to make other engagements that will conflict. We want the man behind the gun and who will come equipped with fullauthorization from his company to do anything within the bounds of reason which this meeting may bring to a head.
>
> We will have one meaty talk on the general scheme from a member of a similar co-operative Society that has been in existence for some time and then listen to cricitism. We will insist upon clear, concise arguments. Inform yourself. Come equipped to effect a permanent organization with data as output, etc., so we can get upon some tangible basis.
>
> Come. Get every other clay man you see to come. Write me your opinion or any suggestions.
>
> ILLINOIS CLAY MANUFACTURERS' ASSOCIATION,
> A. E. Huckins, Sec'y.,
> Urbana, Ill.
>
> Committee:—J. L. Buckley, Care Hydraulic Press Brick Co., Davenport, Ia. D. C. Haeger, Aurora, Ill. Iverson C. Wells, Editor "Brick & Clay Record," Chicago, Ill.

The meeting will convene at 10.00 o'clock on the morning of Thursday, March 19, and the session will last all day.

If You Intend to Take the Chaldean Special to New Orleans

Go to Parlor Suite "P" at the Grand Pacific Hotel, Jackson Boulevard and Clark Street, Chicago, as soon as you arrive in that city.

Register your name, secure your berth reservation, learn what the plans are, find out who else is in town and where they are going to be all day.

A Chaldean High Priest and a Railroad Representatiue will be there

All Day Saturday, February 28th.

Ceramic Society Meets Feb. 24-27

The Sixteenth Annual Meeting of the American Ceramic Society will take place at Wheeling, W. Va., beginning Tuesday morning, February 24 at 10 A. M. The sessions will continue through Wednesday and all of Thursday, as may be needed. In case of an unusual number of papers or prolongation of discussions, a portion of Friday could be used but it is planned to make that day one for plant visitations. Members of the Society who plan going to New Orleans to attend the convention of the National Brick Manufacturers Association can do so nicely, staying over in Wheeling until Saturday, the 28th and going by the Baltimore and Ohio to Cincinnati, where they can join the Chaldean Special which arrives in Cincinnati at 7:15 A. M. Sunday, March 1st, and leave an hour later.

The meeting of the Society will be held at the Stratford Springs hotel at Woodsdale, a beautiful suburb of Wheeling, the program being as follows:

TUESDAY, FEB. 24 (morning)—Business Session; Presidential Address, by Ellis Lovejoy, of Columbus, Ohio; Data on the Effects of Varying Compression Loads Applied to Clay in the Plastic Condition, by C. W. Parmelee, of New Brunswick, N. J.

TUESDAY, FEB. 24 (afternoon)—The Society will take up the papers in the order that they appear on the list below, there being no fixed point in the program for recess or adjournment. The papers are:—

1. Note on the Restoration of Plasticity to Pottery Scrap Clay, by J. Minnemann, Derry, Pa.; 2. A Study of the Atterberg Plasticity Method, by C. S. Kinnison, Bureau of Standards, Pittsburgh, Pa.; 3. The Plasticity of Clays, by N. B. Davis, Ithaca, N. Y.; 4. The Feldspar Supply of the United States, by A. S. Watts, Columbus, Ohio; 5. The Clays of Kansas, by Paul A. Teetor, Lawrence, Kansas; 6. The Compression Tension and Cross-breaking Strength of Certain Clays in the Dry State, With and Without the Use of Standard Sand, by A. V. Bleininger, Bureau of Standards, Pittsburgh, and W. L. Howat, Urbana, Ills.; 7. The Effects of Some Electrolytes on Clays, by Robert Back, Bureau of Mines, Washington, D. C.; 8. A Laboratory Oven Provided with Recording Attachments for the Study of the Drying of Clays, by A. V. Bleininger, Bureau of Standards, Pittsburgh, Pa.; 9. The Preparation of Feldspar or the Ceramic Industry, by A. S. Watts; 10. A Rope Haulage System, Using Electric Power, With Gravity on an Incline, by Walter A. Hull, Lookout Mountain, Tenn.; 11. Note on the Reduction Temperature of Ferric Oxide in Clay Mixtures of Varying Acidity and Under Oxidizing Conditions, by C. S. Kinnison, Bureau of Standards, Pittsburgh, Pa.; 12. The Effect of the Addition of Lime and Silica to a Shale, by Paul A. Teetor, Lawrence, Kansas; 13. The Viscosity of Some Shales at Kiln Temperatures, by G. H. Brown, Bureau of Standards, Pittsburgh, Pa.; 14. The Use of Mixed Potash and Soda Feldspars in Porcelains, by A. S. Watts, Columbus, O.; 15. The Viscosity of Porcelain Bodies High in Feldspar, by A. V. Bleininger and C. S. Kinnison, Bureau of Standards, Pittsburgh, Pa.; 16. A Comparison Between English and American Earthenware Glaze Practice, by Ernest Mayer, Beaver Falls, Pa.; 17. Deformation Temperatures of Some Porcelain Glazes, by R. T. Stull and W. L. Howat, Urbana, Ills.; 18. Colored Porcelain Glazes, by E. T. Montgomery and I. A. Kruson, Alfred, N. Y.; 19. A Thermal Study of the System Na_2O, ZnO, SiO_2, by R. K. Hursh, Urbana, Ill.; 20. Roofing Tile Glazes, by E. T. Montgomery and C. F. Tefft, Alfred, N. Y.; 21. A Type of Crystalline Glaze at Cone 3, by C. C. Rand and H. G. Schurecht, Urbana, Ills.; 22. Terra Cotta Bod-

ies, Slips and Glazes, by Gordon D. Phillips, Alfred, N. Y.; 23. The Influence of the Soluble Salts in a Clay Upon the Behavior of a Slip and Glaze, by Merle A. Coates, Alfred, N. Y. 24. The Influence of Chlorides of Calcium and Iron when Precipitated into a Porcelain Body, by B. S. Radcliffe, Urbana, Ills.;25. The Preparation of Underglaze Colors by the Solution Method, by R. M. Howe, Alfred, N. Y.;26. Some Cobalt Uranium Colors, by B. S. Radcliffe, Urbana, Ills.; 27. A Rational Piecework System for Placing Kilns, by J. Minnemann, Derry, Pa.; 28. Scientific Management and the Bonus System as Applied to Pottery Manufacture, by C. J. Kirk, New Castle, Pa.; 29. A Deartment of Ceramics in the Oregon School of Mines, by I. A. Corvallis, Oregon; 30. Recent Developments and Improvements at the New York State School of Clay Working and Ceramics, by E. T. Montgomery, Alfred, N. Y.; 31. Note for Discussion. Some Corrections in Our Transactions, by R. T. Stull, Urbana, Ills.; 32. The Transverse Test Applied to Pottery Plaster, by F. B. Allen, Washington, D. C. 33. Some Properties of White Portland Cement Mortar, by P. H. Bates, Bureau of Standards, Pittsburgh, Pa.; 34. The Hydration of Portland Cement, by A. A. Klein and A. J. Phillips, Bureau of Standards, Pittsburgh, Pa.; 35. A Method of Indicating the Rate of Set of Lime Mortars. by W. E. Emley, Bureau of Standards, Pittsburgh, Pa.; 36. The Effect of Consistency and Amount of Sand on the Properties of Lime Mortar, by W. E. Emley, Bureau of Standards, Pittsburgh, Pa.; 37. The Technical Control of a Window Glass Tank Furnace, by C. J. Brockbank, Niagara Falls, N. Y.; 38. The Needs of the Glass Manufacturer in the Way of Refractories, by C. W. Berry, St. Louis. Mo.; 39. The Limits of the Proportions of Soda-Lime Glasses, (By Title) by F. Gelstharp and J. C. Parkinson, Ford City, Pa.; 40. Note on the Development of the Ruby Color in Glass, by A. E. Williams, Urbana, Ills.; 42. Fluorite as an Opacifier, by J. B. Shaw, Pittsburgh, Pa.; 43. Rotary Dry-Rooms for Potters, by Herford Hope and B. D. Hardesty, Beaver Falls, Pa.; 44. The Flow of Clays Under Pressure, by A. V. Bleininger and D. W. Ross, Bureau of Standards, Pittsburgh, Pa.; 45. Further Notes on the Consumption of Power in Stiff-Mud Brick Machinery, by R. R. Hice, Beaver, Pa.; 46. Apparatus and Improvements in the Pottery Casting Process, by Herford Hope, Beaver Falls, Pa.; 47. Notes on the Cooling of Vitrified Sewer Pipe, by S. C. Karzen, Uhrichsville, Ohio; 48. The Burning of Rough Texture Shale Face Brick, by W. A. Hull, Lookout Mountain, Tenn.; 49. Hints on Experimental Frit Kilns, by W. Angus Denmead, Schenectady, N. Y.; 50, Small Laboratory Furnaces, by C. E. Fulton, Creighton, Pa.; 51. Designs of Seven Test Kilns, by R. T. Stull and R. K. Hursh, Urbana, Ills.; 52. The Veritas Firing Discs, by A. V. Bleininger and G. H. Brown, Bureau of Standards, Pittsburgh; 53. Question—Can Producer Gas be Satisfactorily Applied to Periodic Kilns? Raised by I. M. Justice, Dayton, Ohio; 54. Question—Why are Downdraft Kilns in Such Infrequent Use in Potteries? Raised by D. C. Thomas, Wellsville, Ohio; 55. The Relative Thermal Conductivity of Silica and Clay Refractories, by G. H. Brown, Bureau of Standards, Pittsburgh, Pa.; 56. The Legal Definition of Vitrification in Clay Products, by Edward Orton, Jr., Columbus, Ohio; 57. Report on the Paving Bricks Obtained from the Streets of Various Cities, by G. H. Brown, Bureau of Standards, Pittsburgh, Pa.

TUESDAY, FEB. 24 (evening)—The Ceramic Aspects of the Abrasive Material Industry, by Ross C. Purdy, of Worcester, Mass. (Illustrated by Lantern Slides.) This will be followed by "Section Q."

WEDNESDAY, FEB. 25 (morning and afternoon)—Resumption of Reading and Discussion of Papers.

WEDNESDAY, FEB. 25 (evening)—Excursion to the plant of the Hazel-Atlas Glass Company.

THURSDAY, FEB. 26 (morning)—Resumption of Reading and Discussion of Papers.

THURSDAY, Feb. 26 (afternoon)—Completion of Program and Final Business Session. Installation of Officers and New Active Members. Adjournment. This will be followed by a visit to the cast iron enameling department of the Riverside Pottery Company.

THURSDAY, FEB. 26 (evening)—A stereopticon lecture, consisting of views of typical Swedish clayworking factories and clay mines, and notes upon the same, furnished by Mr. G. Wson. Cronquist, of Torekow, Sweden, will be given by Professor Orton. Following this, another "Section Q." will be held either in the hotel or in the rathskeller of the McLure house in Wheeling.

WILL EXHIBIT AT CERAMIC MEETING.

An exhibit that promises to be of considerable interest to the members of the American Ceramic Society, during their coming meeting at Wheeling, will be that of the Brown Instrument Company, which will show several improved features in connection with pyrometers for use in brick and tile plants. The Brown Instrument Company will be represented by Mr. Clapper, and the exhibit will be held in the Stratford Springs Hotel, where the several sessions of the society will be held.

A similar exhibit will be held during the convention of the N. B. M. A. at New Orleans, and will be in charge of John P. Goheen, salesmanager and J. W. Lazear, Chicago representative of the Brown Instrument Company.

Kansas Clayworkers to Form New Association

KANSAS clayworkers will meet at Lawrence, Kans., Feb. 16 and 17. for the purpose of forming a new association. Plans are under way to establish the new organization along progressive lines, and it is possible that it will be looked upon as model one by other state and national organizations among the clayworkers.

A central organization which meets once a year to discuss manufacturing problems and map out the succeeding year's work for a group of district bodies, each of which will have a manager, is the proposed plan.

The direct bodies will meet once a month in some town or city within their own territory and discuss publicity matters, the selling end, traffic and cost accounting.

The introduction of the open-price standard is a part of the scheme and this system will be controlled from one central office which will concern itself entirely with the marketing of the wares.

The meeting has been called at the instance of Paul Teetor of the University of Kansas, and has met with the indorsement of clayworkers all over the state. It will be held in the University building at Lawrence, Kas.

The following program has been announced:

Address of Welcome, by Chancellor Frank Strong.
Organization work.
"The Open Price Policy," by Iverson C. Wells, Managing Editor "Brick and Clay Record."
"Hollow Building Block," by Erasmus Haworth.
"Benefits of Organization," by B. W. Ballou.
"The Work of the Clay Testing Laboratory," by Paul Teetor.
"Relation Between Manufacturer and Jobber," by J. J. Amos.
"Clay Plants in Europe and Canada," by George R. White.
An address, by T. A. Randall, "The Clayworker."
"Burning of Clay Wares," by Paul Teetor.
An informal talk by H. H. Peters and J. N. Strickler.

In addition to the papers outlined there will be addresses by members of the University Faculty.

Boosts Paving Brick in Circular.

A poster 16 inches by 22 inches, headed "A Call to Arms" was circulated among the clayworkers the past week and will go a considerable way to awaken the brick manufacturers to the importance of combating the cement interests in their campaign to build the proposed Lincoln Highway of concrete. The American Clay Machinery Company issued the poster and offers to send additional copies in any quantities to all who wish them at a nominal cost. Through the powerful influence of the cement interests the men who have promoted the Lincoln Highway have been led to declare that concrete construction be used "wherever practicable." This declaration is used not only on all the printed matter issued by the Lincoln Highway Association, but is printed on the certificates of membership which will go all over the country. Up to date the clayworker has done nothing to combat this work and the coming convention at New Orleans should evolve some sort of movement to start things clayward.

Good Intentions?

A "Want Ad." appeared recently in the Des Moines (Ia.) "Register & Leader" which read: "Respectable young man wants neat, respectable lady with some means; paving business." Can it be possible that Paul Beer—but no—never!

Invents Steel-Encased Brick Kiln

Expert Designer Introduces New Idea in Construction Which Gives Greater Strength, Cheapens Cost and Solves Many Problems

By John Grayar

Most of the new processes and machinery used by the clayworker are the result of studious and laborious work. Few of the methods employed, and scarcely none of the devices used, ever were stumbled on through accident. Some come through the development of years of a fundamental idea or principle. The new kiln described in this article by Mr. Grayar is one of this class. Mr. Smith, an expert kiln designer and builder and possessing several patents on kiln construction which have stood the test of experience, has developed what seems to be a great fuel-saving kiln, with a cheaper form of construction and a lessened maintenance cost. The announcement of his invention is here given to the clayworkers of the world for the first time.

Claude Smith.

PREVENTION of heat filtration through cracks, elimination of expensive brick walls in construction and greater economy in operation and upkeep—these items in a down-draft kiln have long been considered in an effort to reduce burning cost. To Mr. Claude Smith, an expert kiln designer and builder, of fifteen years' experience, the clayworker must look, for Mr. Smith has solved the problem and has done so in such a convincing way there is left little room for doubt.

Mr. Smith encases the down-draft kiln in a steel cover or shell which extends entirely around the kiln and from the crown down into the foundation.

At first thought one is inclined to reason that the suggestion is an expensive one, but the actual facts are that kilns so built are cheaper in cost and cheaper in upkeep than kilns built in the ordinary manner, and give greater efficiency in more ways than one.

This new form of construction conforms to the modern practice in the steel industry where blast furnaces that require high temperatures are encased in a similar manner.

Here is what the new steel encased kiln does:

It does away with the expensive and heavy walls used in down-draft kilns.

It reduces the cost of construction materially.

It reduces the repair bills.

It prevents filtration of cold air or heat through cracks, because it eliminates cracks.

It prolongs the life of the kiln.

It prevents expansion.

It reduces the thickness of the walls and permits of a greater elasticity in the construction of independent fire boxes.

The new kiln is being erected at several plants throughout the country, the practicability of the idea being an apparent that these plant owners have not hesitated to make the installation without demanding an actual demonstration.

By reference to the accompanying drawing the construction details will be understood clearly. The heavy, shaded portion at the right of the picture gives an idea of how the steel case is placed around the wall. At the left of the drawing, the case is shown imbedded in the foundation work, the heavy, dark line representing the steel coat.

A cushion is used between the steel case and the brick wall, giving perfect insulation and permitting ample expansion. The walls, as is commonly known, usually are from three to six feet thick, in kilns of this type, making the cost of construction a considerable item. Mr. Smith's idea reduces the thickness of the kiln wall materially.

A four-inch brick wall is built around the kiln for a short distance up for the purpose of protection against ground moisture and the action of acids and atmosphere.

One of the best features about the kiln is the construction form permitted by the steel case. In the ordinary down-draft kiln the fire boxes are replaced within the walls whose extreme thickness make this practical. That an outside fire box would be more desirable is not disputed but as they are built of brick they are an easy prey to passing wagons and likely to injury from other sources.

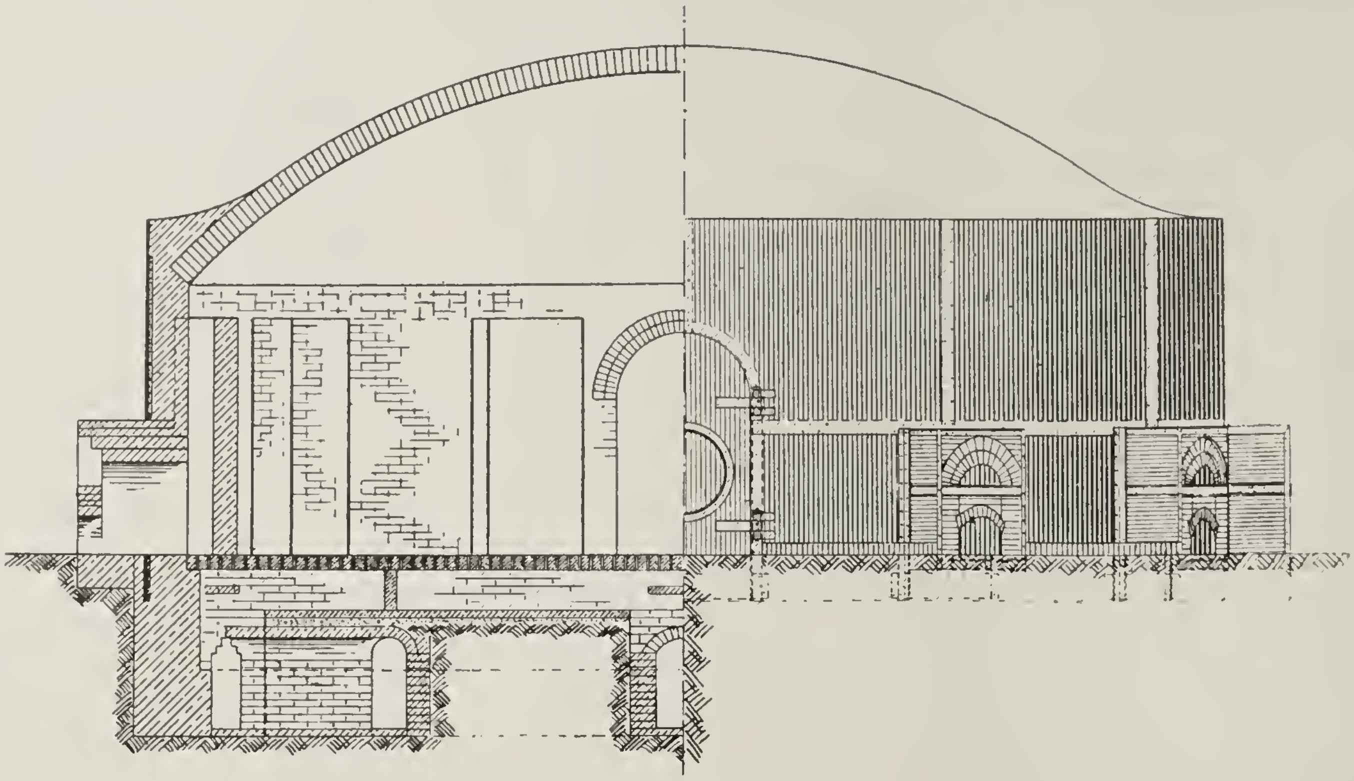
The fire box in the Smith plan, however, being encased in steel just the same as the kiln, and thus stayed and protected, may be built independent of the walls. Greater latitude is given in this way to furnace building, which may be designed to suit the different kinds of fuel to be used, without weakening the kiln wall in any way.

Another excellent feature about the steel casing is the way in which it holds the kiln walls intact and prevents filtration through cracks.

All brick work, such as is used in kiln construction, and which is submitted to intermittent firing, will develop cracks and openings in the wall and permit the drawing in of outside air. Inasmuch as this air must be heated by the fuel burned in the fire boxes it can be seen without an arithmetic or algebra that considerable fuel is wasted in the ordinary brick wall construction.

While Mr. Smith is a comparatively young man, he has had the experience of fourteen years in kiln construction and designing work. He is the inventor of the Smith Round Down-Draft Kiln, of the two-stack type and also has a number of other patents in kiln construction and design which have been put into practical use in clay plants all over the country.

In this steel encased kiln, his latest invention, he apparently has struck a popular chord and the result of the practical demonstration of the new kilns he has under way in various sections of the country, will be awaited with interest.



SECTIONAL ELEVATION

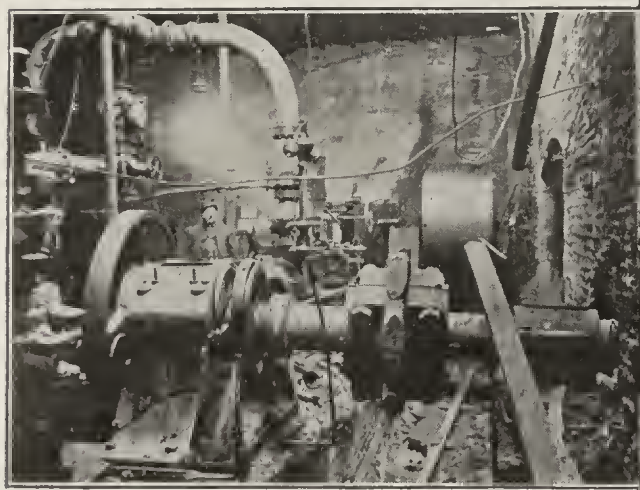


Fig 1.

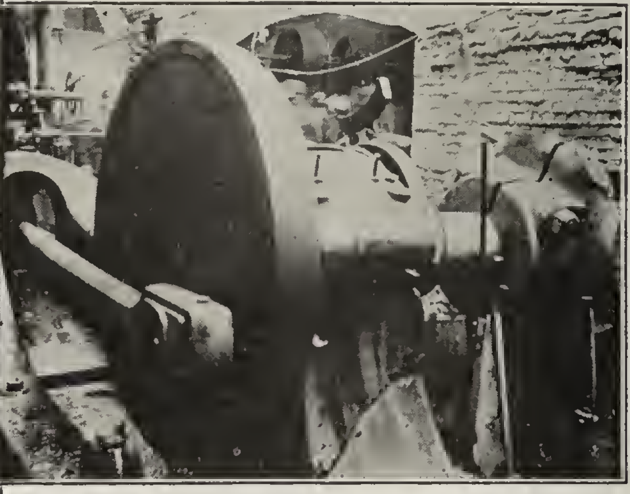


Fig. 2.

Corliss Engine Wrecks Plant

ON DECEMBER 26th, following a quiet Christmas, a 450-h.p. Corliss engine owned by the Athens (Ohio) Brick Company, wrecked itself, doing great damage to the building in which it was situated and to a fine residence about 700 feet distant.

The 16-foot fly-wheel, having a 45-inch face and weighting about ten tons, was completely demolished and thrown through the 12-inch brick walls, breaking a steam exhaust line 10 inches in diameter, and throwing it and many other obstacles in every direction. Other steam lines were broken, as well as the safety-valve on one of the boilers, filling the boiler and engine rooms with live steam, and giving many employees very close calls. Fortunately no lives were lost, although one man was trapped in the engine room at the time of the accident.

The illustration will tell more than words and still not fully describe the great damage done. Figure 1 shows a view through the engine room from the boiler room. taken through opening in a 12-inch wall made by the bursting wheel. The 12-inch shaft is seen to be bent and the hub of the giant wheel still mounted and keyed in position. This hub will weigh close to one ton, and the dimensions of the broken spokes as shown will be close to 12 inches the long way and 4 inches the short way. The cap on the main bearing can be seen to be lifted up and the engine bed beneath the main bearing to be broken. In the distance is the huge driving pulley that was left unhurt, despite the flying missiles, many of which weighed two or more tons.

At the immediate right can be seen an opening in the wall made by the leather belt, when it broke, heavily striking against the brick, and crowding the wall out, breaking back about 4 feet into the wall at the immediate right.

Figure 2 shows only a small part of the distortion of the crank wheel on shaft, but it will give some idea when one considers the curve shown in the connecting rod, and the distance the crank bearing has been pulled off the crank pin. Only one more revolution would have been sufficient to have completely wrecked the cylinder which was (so far as could be seen) uninjured. This and some parts of the valve gears were all that were worth saving.

This valuable engine was made scrap iron in less than one minute, the loss being about $5,000. The central illustration shows the engine room from opposite side to that shown in Figure 1, and also shows the opening in the 12-inch wall into the boiler room. The damage done to the boiler setting is seen and an idea given of the damage done to roof of the building. Some idea may also be gained in regard to the size of the engine by comparison with the men seen at work. In this scene they are removing one of the spokes of the giant wheel. Two of these spokes were found in the boiler room in a small alleyway where the fireman had started through to the engine room, when it became evident that he could not do anything. Seeing his danger and knowing he could not reach the engine in time, he turned and had just made his escape when the accident occurred.

The real cause of the accident is unknown, although it is thought to have been caused by a slipping governor-belt. Had this belt broken the safety device would have shut the engine off and no damage would have been done.

These men are clayworkers who took the 1914 *short course in ceramics at the University of Illinois:* 1, *Walter M. Pratt;* 2, *Peter Munson;* 3, *H. C. Steinmeyer;* 4, *W. J. Harris;* 5, *L. M. Munshaw;* 6, *F. M. Lindley;* 7, *R. M. Dallam;* 8, *Anton Loft;* 9, *Fred Brand;* 10, *H. S. Sleicher;* 11, *John Johnson;* 12, *T. I. Brett;* 13, *R. B. Keplinger;* 14, *John B. Poston;* 15, *M. R. Watson;* 16, *A. Hammerschmidt;* 17, *Philip Raimer;* 18, *Chas. Henderson;* 19, *H. L. Meyer;* 20, *B. S. Radcliffe;* 21, *C. W. Schmidt;* 22, *W. F. Kramer;* 23, *Julius Mathis;* 24, *W. C. Holmes;* 25, *C. A. Smith;* 26, *Elwood Stevens;* 27, *Samuel McGrew;* 28, *A. V. Bleininger;* 29, *A. P. Potts;* 30, *B. Mifflin Hood;* 31, *Andrew Basal;* 32, *Mead Petty;* 33, *M. J. Johnson;* 34, *J. D. Runyan;* 35, *A. E. Williams;* 36, *R. D. Ferguson;* 37, *C. C. Rand;* 38, *N. McLaughlin;* 39, *L. Y. Halberstadt;* 40, *R. K. Hursh;* 41, *R. T. Stull;* 42, *A. E. Huckins;* 43, *E. J. James;* 44, *E. McM. Moore;* 45, *Emanuel Johnson;* 46, *W. H. Fullerton.*

The Industrial Ceramic Course at Illinois

SOON after the ceramic department was established at the University of Illinois, an annual course of lectures was offered extending over a period of two days and known as "The Clay Workers Institute." The ground covered in so short a time barely served to whet the appetites of the men in attendance for more of the manna of ceramic knowledge. The great interest and enthusiasm shown by these students bespoke the need of more extended instruction.

The growth of the ceramic department has been so rapid that it has, in the past, been handicapped for lack of room. In order to give a more extended short course of high efficiency, it was imperative that the ceramic department provide suitable room and equipment so that laboratory exercises and practice in kiln firing could be interwoven with the lecture work.

Three years ago, the State Legislature granted an appropriation of $21,000 for a kiln house and equipment. In this building, a large lecture room and a laboratory were provided so that a short industrial course could be conducted without conflict or interference with the work of the regular four-year ceramic students.

The room and equipment in the new kiln house became available in the fall of 1912 and the industrial course in ceramics was offered last year for the first time from Jan. 13 to Jan. 25. Forty-five applications were received and twenty-three men registered. This year, the course was offered again from Jan. 12 to Jan. 24. Sixty-one men made application and fifty-one registered. Fourteen states were represented. These states and the number of men from each are:

Illinois	18	Nebraska	1
Ohio	10	North Carolina	1
Indiana	5	New Jersey	1
Iowa	5	New York	1
Pennsylvania	3	Virginia	1
Missouri	2	West Virginia	1
Georgia	1		
Michigan	1		51

The work was designed to cover in an elementary and practical manner the more important phases of clay working operations. It consisted of lectures, laboratory exercises, practice in kiln firing, machinery installation and informal gatherings for questions asking under the instruction by the following men:

Prof. A. V. Bleininger, Pittsburgh, Pa., Ceramic Chemist, Bureau of Standards.

R. T. Stull, Urbana, Ill., Acting Director, Department of Ceramics, U. of I.

R. K. Hursh, Urbana, Ill., Instructor, Dept. Ceramics, U. of I.

B. S. Radcliffe, Urbana, Ill., Instructor, Dept. Ceramics, U. of I.

A. E. Williams, Urbana, Ill., Assistant, Dept. Ceramics, U. of I.

C. C. Rand, Urbana, Ill., Assistant, Dept. Ceramics, U. of I.

Prof. C. R. Richards, Urbana, Ill., Acting Dean, College of Engineering, U. of I.

Prof. L. A. Harding, Urbana, Ill., Dept. Experimental Engineering, U. of I.

Prof. A. M. Buck, Urbana, Ill., Dept. Railway Engineering, U. of I.

A. P. Kratz, Urbana, Ill., Dept. Experimental Engineering, U. of I.

B. W. Benedict, Urbana, Ill., Director Shop Laboratories, U. of I.

D. L. Scroggin, Urbana, Ill., Instructor in Machine Shop, U. of I.

G. H. Radebaugh, Urbana, Ill., Instructor in Machine Shop, U. of I.

The students registered on the 1914 short course were:

Elwood Stevens, Decatur, Ind., Kirck-Tindall Co.
A. C. Phillips, St. Louis, Mo., Laclede-Christy Co.
H. L. Meyer, Alton, Ill., Alton Brick Co.
Chas. Henderson, Alton, Ill., Alton Brick Co.
W. F. Kramer, Alton, Ill., Alton Brick Co.
E. J. James, Kushequa, Pa., Kushequa Brick Co.
Samuel McGrew, Shawnee, O., Ohio Mining & Mfg. Co.
R. M. Dallam, Ft. Dodge, Ia., Lehigh Sewer Pipe & Tile Co.
F. M. Lindley, Goldsmith, Ind., T. F. Lindley Drain Tile Co.
A. E. Huckins, Urbana, Ill., Sheldon Brick Co.
W. H. Fullerton, So. Webster, O., So. Webster Face B. Co.
R. P. Keplinger, Canton, O., Metropolitan Pav. Brick Co.
R. D. Ferguson, Lincoln, Neb., Yankee Hill Brick Co.
J. D. Runyan, Cincinnati, O., Chas. Taylor Sons Co.
M. R. Watson, Danville, Va., Watson-Fitzpatrick Corp.
C. A. Smith, McArthur, O., McArthur Brick Co.
W. J. Harris, Bay City, Mich., Michigan Vitrified Brick Co.
W. E. Berwald, Davenport, Ia., Davenport Brick & Tile Co.
C. W. Schmidt, Buffalo, N. Y., Geo. W. Schmidt.
B. Mifflin Hood, Atlanta, Ga., B. Mifflin Hood Brick Co.
D. S. Wenzlick, St. Louis, Mo., Excelsior Press Brk. Co.
H. C. Steinmayer, LaSalle, Ill., The LaSalle Press Brick Co.
Peter Munson, Capron, Ill., Munson Bros., & Co.
Anton Loft, Capron, Ill., Munson Bros. & Co.
S. F. Spencer, Urbana, Ill., Sheldon Brick Co.
A. Hammerschmidt, Lombard, Ill., Lombard Brick & Tile Co.
Mead Petty, Amherst, O., Mead Petty.
E. McN. Moore, Jr., Burgaw, N. C., Burgaw Brick Wks.
Emanuel Johnson, Mediopolis, Ia., August Johnson & Sons.
M. J. Johnson, Mediopolis, Ia., August Johnson & Sons.
Julius Mathis, Rosford, O., Rosford Brick & Tile Co.
John Johnson, West Salem, Ill., West Salem Hollow Brick & Tile Co.
Fred Brand, West Salem, Ill., West Salem Hollow Brick & Tile Co.
L. N. Munshaw, N. Crystal Lake, Ill., American Terra Cotta & Ceramic Co.
J. R. Thomas, Crawfordsville, Ind., Standard Brick Co.
Walter M. Pratt, Earlville, Ill., Walter M. Pratt Co.
J. I. Brett, Fairmont, W. Va., Hammond Fire Brick Co.
I. E. Hardy, Momence, Ill., Tiffany Enam. Brick Co.
E. R. Sparrow, Matawan, N. J., New Jersey Co.
W. C. Holmes, Rockport, Ind., Rockport Drain Tile Co.
F. G. Chenneour, Roanoke, Ind., Roanoke Drain Tile Co.
J. W. Neal, Jacksonville, Ill., Jacksonville Brick & Tile Co.
N. H. McLaughlin, Alsey, Ill., Alsey Brick & Tile Co.
J. B. Poston, Logan, O., Hocking Valley Brick Co.
H. S. Sleicher, Gleasonton, Pa., The North Bend Fire Brick Co.
L. Y. Halberstadt, Reading, Pa., Reading Shale Brick Co.
Philip Raimer, Bedford, O., Newburgh Brick & Clay Co.
Andrew Basel, Cleveland, O., Newburgh Brick & Clay Co.
H. G. Moore, Urbana, Ill., Sheldon Brick Co.
Douglas Stevens, Danville, Ill., Acme Brick Co., (Cayuga, Ind.)
Prof. A. P. Potts, Ames, Ia., Ceramic Dept., Iowa State College.

The interest, enthusiasm and appreciation shown by the short course students is indeed gratifying to the instructors. There is no question as to the success and popularity of the industrial course, it has come to stay and is to be an annual feature.

Concrete Tile Takes Another Important Contract.

Thirty-thousand feet of reinforced concrete tile, ranging from 10 to 40 inches in diameter, and involving an outlay of $48,000, will be used in the construction of Union Drainage District No. 6 in Manteno and Bourbonnais townships in Illinois. The contract was secured by the Kankakee Cement Tile & Pipe Company, of Kankakee, Ill., and includes excavation.

The same company has completed the greater part of its $28,000 contract in the Joe Benes Drainage District, which required 37,000 feet of concrete tile, ranging from 8 to 37 inches. A feature of the work was a 23-ft. cut, 225 feet in length, through a hill. This portion of the contract called for 24 in. reinforced concrete tile.

Considering the amount of literature that has been printed, and the indisputable facts that have been established as to the danger of concrete piping, it would seem as though the clayworkers of Illinois had left something undone, when nearly sixty thousand feet—more than nine miles, of concrete pipe is laid in their territory.

A Brick Plant for Sale.

A subscriber to "Brick & Clay Record" advises us that he will sell an interest in a good brick and tile plant, to some practical man whose experience is such as to promise his being able to make a success of this venture. The plant is in southern Michigan, and has a deposit of fine clay that is practically unlimited. Good markets are within a reasonable shipping distance, transportation facilities are excellent and the plant is in good running order. Readers of this journal whom an opening of this kind would interest, are requested to communicate with the editor.

Short Line to New Orleans.

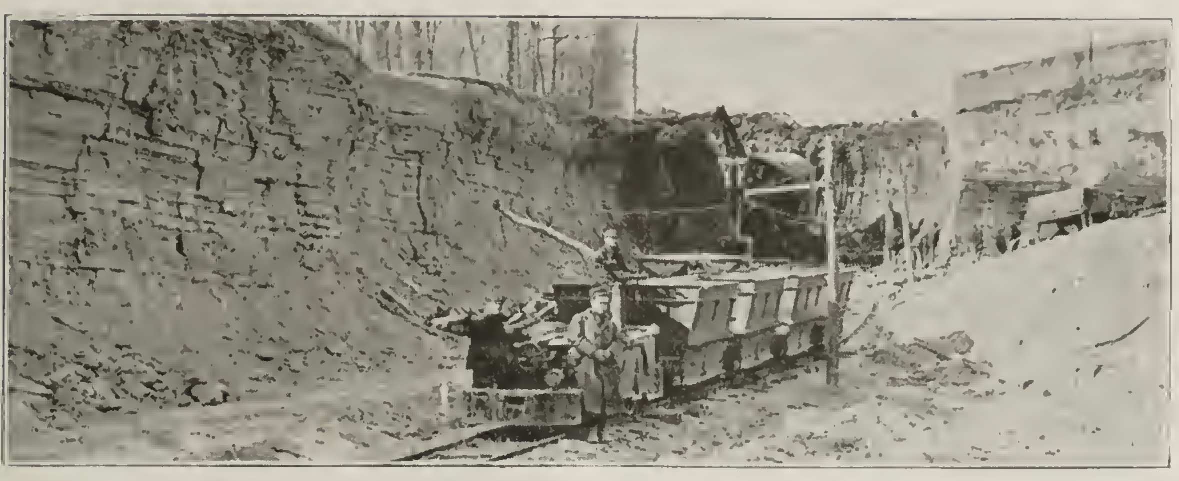
Even at this season of the year, when "open" yards are closed and brick orders are nearly as scarce as hen's teeth, some of the Clay family will feel that time is an important item, and want to go to the New Orleans convention by the shortest possible route. This, to those who live in the first eleven of the thirteen original states, is the New York and New Orleans Short Line, being Pennsylvania Railroad, New York to Washington; Southern Railway to Lynchburg, Va.; Norfolk & Western to Bristol, Va.; Southern Railway to Chattanooga, Tenn.; Alabama Great Southern to Meridian, Miss.; New Orleans and North Eastern to New Orleans. The total mileage is 1,344 miles, New York to New Orleans, and the train that leaves New York at 3:38 P. M. arrives in New Orleans at 9:10 A. M. the second day thereafter. Starting at sea level, and gradually rising to an elevation of more than 2,500 feet, it crosses two mountain ranges, the Blue Ridge and the Alleghanies. The scenic wonders of this trip will be appreciated, as the greater part of the run over the mountains is made by daylight.

Join the Boosters!

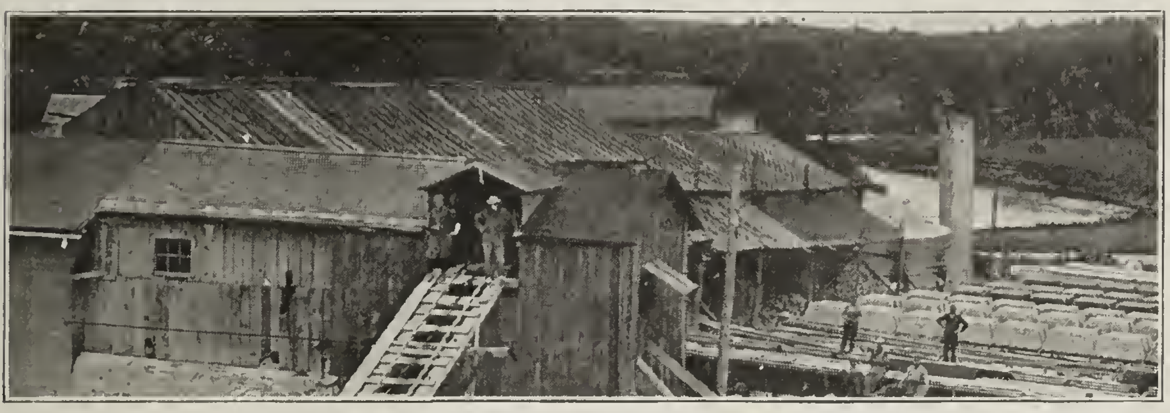
If you are going to the New Orleans convention, ride on the Chaldean special train. Write W. P. Varney, 301 Chamber of Commerce, Chicago, for information as to schedule, rate of fare and Pullman reservations.

In the Limelight

People and Things of Interest to Clayworkers

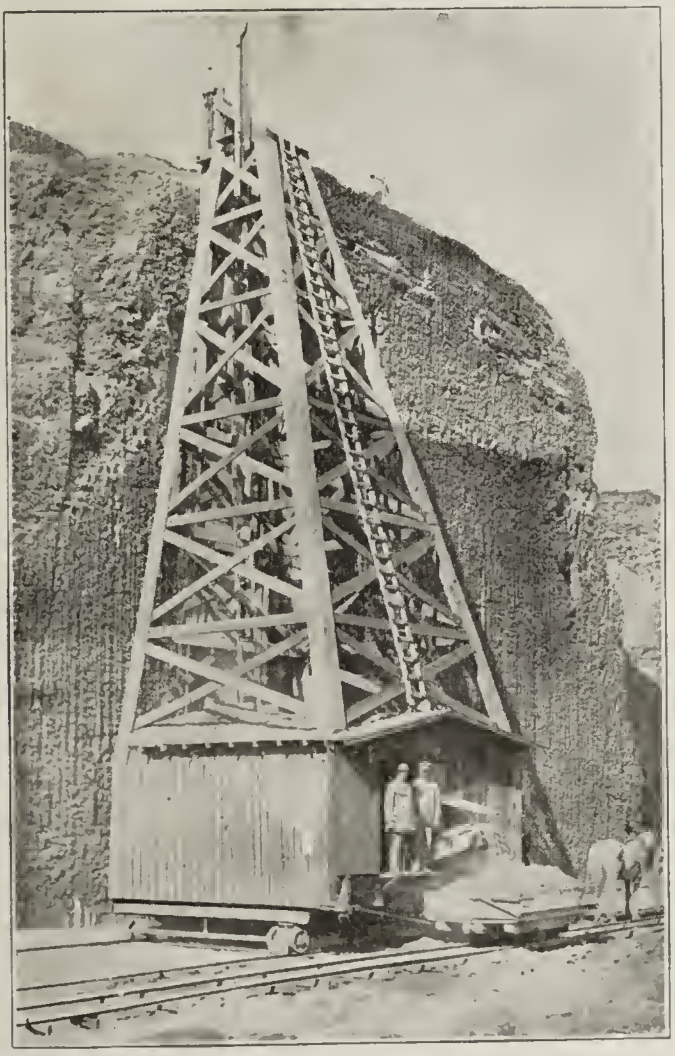


The mine type motor used in hauling clay by the Rose Brick Company, Roseton, N. Y., is shown here. A great economy is assured by this method, so the Rose company reports. Note that four cars constitute this train.

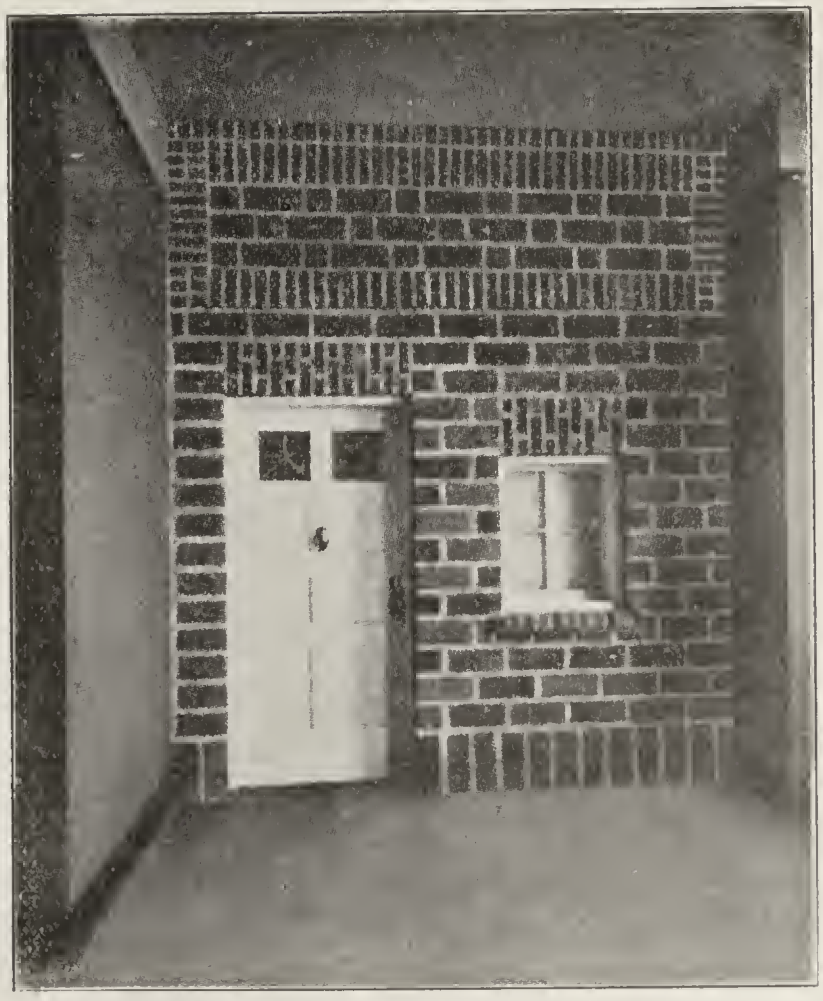


This type of yard is fast disappearing in most sections of the country. In Wisconsin, Minnesota and some other sections, however, the open yard drying system is still believed best adapted to the requirements and it is quite frequently seen. The plant shown above is that of the Falls Brick & Tile Co., Wachter Bros., proprietors, Sheboygan Falls, Wis.

W. H. H. Rogers, of the Rochester Brick & Tile Co., Rochester, N. Y., is retiring president of the N. B. M. A. He will give up his gavel at the New Orleans convention in March.



This is the shale shaver that J. M. Powell of the Indiana Brick & Tile Co., Brooklyn, Ind., invented to solve his problem of clay mixture and which has been mentioned frequently in this magazine of late. A full description of the same appears in the Dec. 1, 1912, issue of "Brick and Clay Record."



Hollow tile for interior and exterior finish is being used by architects with pleasing effect. The accompanying illustration is an interior wall so treated. Of course a selection of shades is desirable but many architects like the contrasting hues usually found in tile and make no attempt at sorting to color.

Who's Who

Being a Little Personal Mention of Interest to Clayworkers

W. S. Dickey.

A CUBIC mile of rich top-soil is washed down the Missouri river from the western farms each year. To stop this waste, W. S. Dickey of Kansas City, Mo., has invented what is known as a soil saving dam. This dam is now on exhibition in Kansas City, and is creating a lot of interest. Down through the field runs a ditch that cuts into the field and carries off, each year, a lot of the best soil. The Dickey plan is to build a dirt dam at the lower end of the ditch, where it leaves the field. Under the dam is laid a tile big enough to carry the water that comes down, and on the upper side of the dam an elbow is put into the tile and the tile laid up nearly to the top of the dam. When it rains and the water goes rushing down, the dam backs the water up and when the water gets nearly to the top of the dam it overflows into the top of the tile and finds an outlet. The water flowing from the top all the while, the dirt and sediment at the bottom is dropped and the ditch above the dam fills up and gradually fills all the way back to the head of the ditch. A year will close the ditch up so crops may be grown in it. Such a plan costs about seven dollars to put in operation.

Rogers M. Combs.

ARCHIMEDES claimed that, if given a fulcrum for his lever, he could move the world. With the fulcrum of inventive genius and the lever of a forehandedness that led him to patent the project, Rogers M. Combs, once of Philadelphia, but now, happily, of Chicago, will move Niagara Falls to the Panama-Pacific Exposition at San Francisco in 1915. Not that happy brides and conscious bridegrooms will miss the awe-inspiring spectacle that washes the northwest corner of New York state, in case they bend their steps in that direction next year, but, on the extreme western edge of this great country, Rogers M. Combs will have built a reproduction so vast, so inspiring and—wet, that people will believe (backing their belief with an admission ticket marked in plain figures—"50c") that it is the real, simon-pure, horseshoe Falls. The idea came to "Rog" some eight or ten years ago, and, the mills of the Patent Office gods grinding with exceeding slowness, the matter only came to light in the early part of 1911. Then an amusement enterprise promoter secured a half-Nelson on Combs' best ear, and made a deal that should put both promoter and inventor in the millionaire class. When Combs isn't inventing, he is vice-president and salesmanager of the Thomas Moulding Brick Company of Chicago. No further introduction is necessary.

C. C. Schawlem.

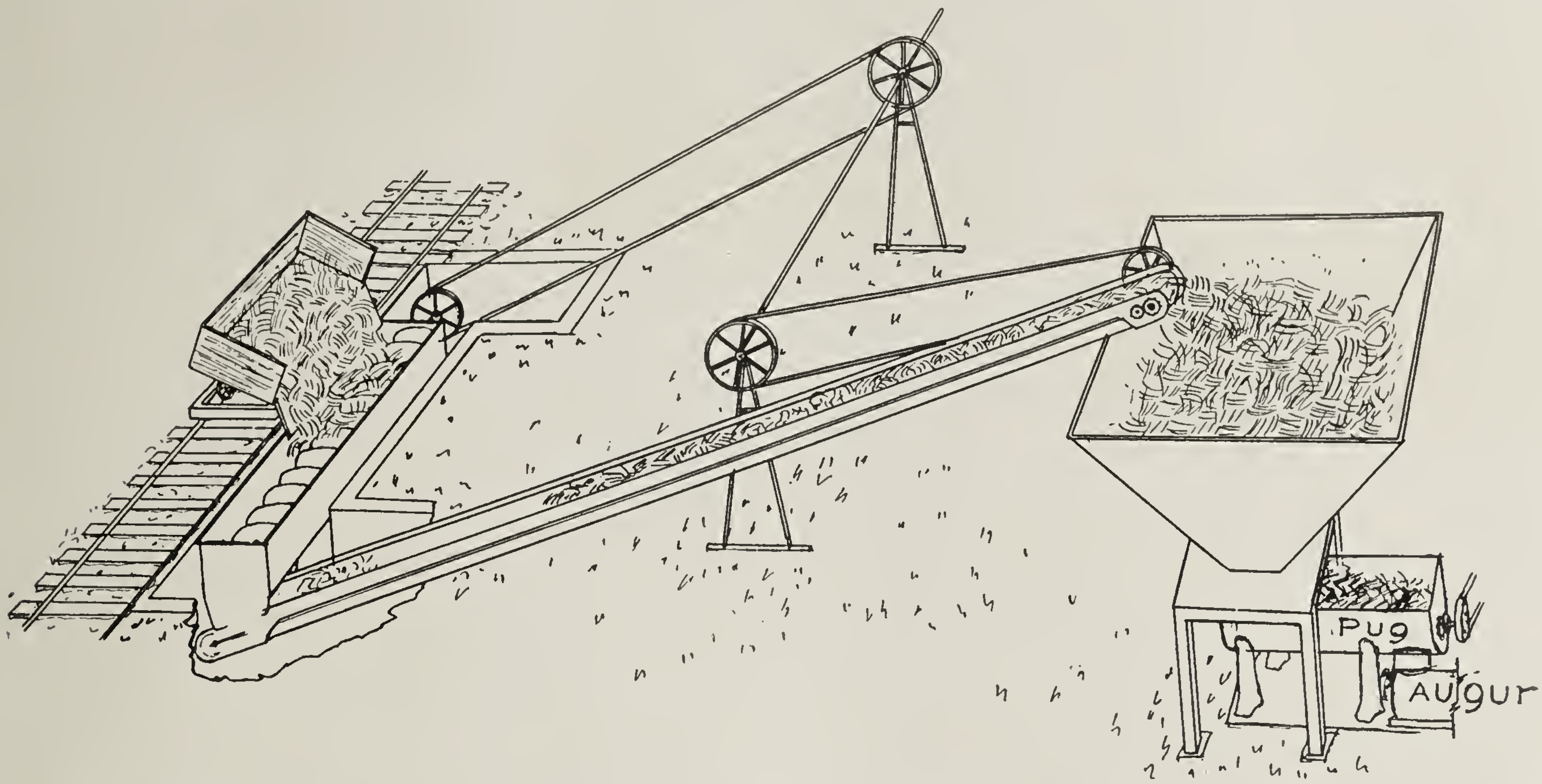
SOJOURNERS in Alliance, Ohio—and they are many, for the "Pennsy" has made Alliance a junction point of some importance—have cause to bless the ambidextrous mind of C. C. Schawlem, who, while in active control of one of the best paving brick plants in the country, finds time to manage a hotel. Now—reports to the contrary notwithstanding—Ohio hotels are not uniformly good. Here and there is one that is "homey"—the meals good and the beds comfortable. In between, Indiana has nothing to blush for. Mr. Schawlem's hotel is one of those hostelries that make you believe in hotel men. It is one of the good ones. Traveling men do not "skip" Alliance now—they "make" it. The towns they "skip" are those in between Alliance and the next point where a real, red-blooded human being conducts the outfit and tries to make his "paying guests" feel at home. The hotel, almost as much as the brick plant, reflects the man. No one can step inside the limits of the Alliance Clay Products Company's property without being struck with the orderliness—the cleanness of the place. Further investigation shows provision for the safety and comfort of the men that are all too often neglected in clayworking establishments. And the output, like the food in the hotel, is helping to make Alliance, Ohio, known—known favorably and well—over an ever widening circle of fruitful territory in a section of the country that can afford to pay for good things.

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

This Idea Wins the First Prize in Superintendents' Contest



I offer the accompanying sketches (see above and top of next page) for a system of hoisting clay to bin. The driver of the mule does the dumping of cars and the machinery does the rest—thus eliminating the man at the hoist.—B. Broadwell. Kingsville, Ontario, Canada.

A special prize of $5 is offered each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea? Send it in. It may help a fellow clayworker and at the same time win the $5 prize. You are sure at least of getting $1 if the item is printed. Address: Superintendent Department, "Brick and Clay Record," Chicago.

When creams and small jugs are cast two or three in a mold, it is essential that the sides of the mold fit together perfectly to avoid leakage. The insertion of a piece of iron in the cases to prevent warping would be to some advantage. The taking off of the molds from the case as soon as possible to avoid bending and pinching off of the corners is also a wise thing to do.—R. A. W.

The Color of Heat.

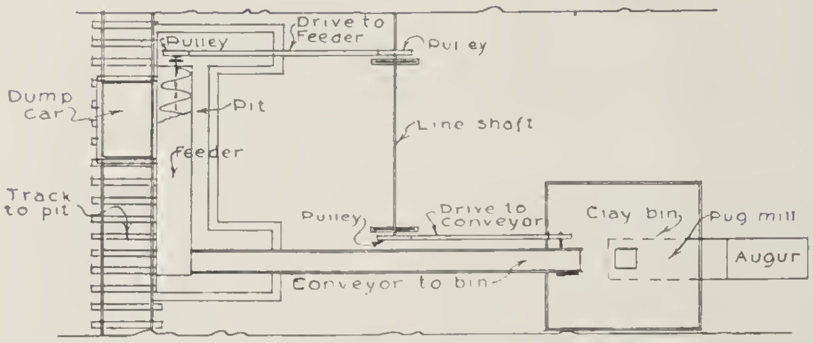
Heat color is first discernable at 750 or 800 degrees. It shows a sombre or dull red in the dark, but cannot be seen in twilight. To be visible by day it must be about 1,080 and is dark red.

Weathering of Clay.

The degree of granulation in clays depends to a considerable extent on the amount of weathering. Drying troubles may be regulated by mixing weathered and unweathered clay. Weathering increases plasticity and is, in fact, the bond. Unweathered clay may be termed the body. If you have all body and no bond there will be trouble in drying. —T. K. S.

Keeping Boiler Clean.

There is a device advertised for cleaning the flues of a boiler with steam. It is a permanent fixture in the rear wall and not only is efficient but economical. It is in the nature of a blower, and is inserted in the wall through an opening six inches in diameter. The installation is simple and inexpensive. The blower has a nozzle containing four openings all at a different angle, the steam coming out of one opening at a time. Turning a wheel rotates the nozzle and the soot is blown in the direction of the natural draft out through the smoke stack, cleaning the boiler while in commission without opening a door or disturbing your fire.



This Sketch Accompanies the Prize Idea on the Preceding Page and Shows the Ground Plan of the Hoisting Device Suggested by Mr. Broadwell.

Piece Work Most Efficient.

Greater efficiency may be obtained among your employes by placing them on piece work. One plant has all its men on this system and has not only greatly increased the output, without hurting quality, but has given the men an incentitive to work and made them contented. This owner very painstakingly figured out just what his men should do as a day's work and fixed his wage scale accordingly. Four o'clock is the minimum day and the men must work until that hour but may quit at any time after that if they have done the required amount of labor. The men in the clay pit must furnish a certain amount of clay within that time for which they are paid a stated sum. A bonus is paid for all clay above that amount each day. Usually the men have earned a bonus before 4 p. m. The machine men, the setters, the yard men, in fact every employe is paid in the same manner. This system removes from the foremen the necessity of keeping an eye on output as the men see to that themselves. He spends his time in looking after quality. The piece system has a tendency to increase team work and eliminate the laggard as no set of men are going to permit one man to hold them back. There is only one real danger in the system and that lies with the employer and not the employe. There is some danger that the employer will break faith with his men, after he sees them working to their fullest efficiency and earning, through bonuses, a fair wage. He is apt to increase the output required and thus reduce the earnings of his men. When this attitude is shown the piece system invariably suffers, for the men lose confidence in their employer and discouraged, soon drop into a mental attitude that robs the system of its advantage. First determine what shall be a fair day's work and stick to it no matter what your temptation may be.—J. G. W.

Using Old Kiln Bands.

Use your old kiln bands for wheel barrow runways. Wheeling is easier and consequently more brick come out of the kiln in a stated time.—M. D. B.

Men Must Fit the Job.

Do not lose sight of the fact that the capabilities and aptitudes of all workingmen are not the same. A man may be a conscientious worker and yet be inefficient, simply because he doesn't fit the job.—C. S. Kinnison.

Changing Plasticity of Your Clay.

If your clay is too plastic add sodium carbonate (N A. CO3)—not more than 1/10 per cent. If you wish to make your clay more plastic the addition of hydrochloric acid—not more than 1/100 per cent normal solution will produce the desired result.—T. K. S.

A Neglected Novelty in Tiling.

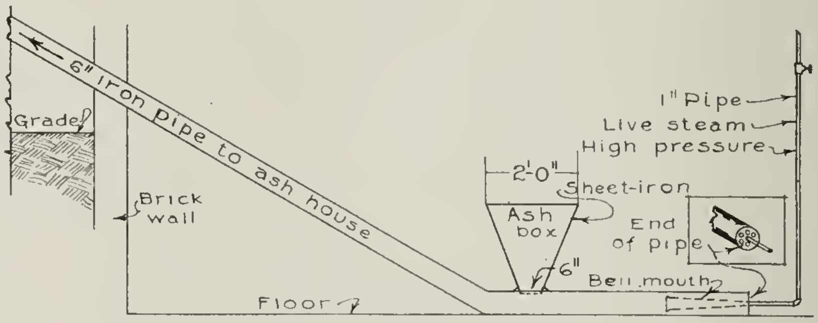
Greenhousemen are often at a loss as to how to obtain lumber appropriate to bench construction. Pecky cypress is the only approved material, but the distribution is so limited it can only be obtained from a distance or not at all, and this means extra cost added to already high lumber prices. Among others, the Camp Conduit Co., of Chicago, placed in the market a bench tile which is now generally used and has the approval of greenhouse builders, but among the untutored floriculturists the bench tile is practically unknown. Here's an opportunity makers of this specialty might utilize to material advantage.—J. Bertram, Mead and McLaran Aves., St. Louis, Mo.

Make Flower Pots Standard Size.

Some manufacturers of flower pots lose out on account of their not making uniform sizes; especially is this the case with fractional sizes, as, for instance, 2½ in. or 3½ in., which frequently come but a scarce 2 in. or 3 in. This may be due to carelessness, or to inefficient equipment, or, on the other hand, to an attempt to secure style or ornamentation at the sacrifice of displacement. The potter that gives quanity, plus quality, gets and holds the trade. Owing to potted plants being marketed by pot sizes, every floriculturist desires uniform sizes that conform to his specifications.—J. Bertram.

Economical Way of Handling Ashes.

Should your boiler room be so located that you have trouble in getting out the ashes, the accompanying illustration will aid you. The pipe beyond the ashbox can be set at any angle up to 45 degrees and can be any ordinary length. Clinkers must be broken up. Five minutes time twice a day will get rid of all ashes made in 24 hours. Ashes should be blown into a closed ashhouse to avoid dust.—J. W. Leech, 313 West Fifth St., Erie, Pa.



Proper Way of Building Clay Car Tracks.

Build a tramway in a "bee line" from the clay pit to the dumping point of the car, if you wish to get the greatest efficiency. Nine engineers out of ten, or I might say 99 out of 100, who design a brick plant will build the tramway so that the car entering the clay shed does so parallel with one side of the building or "square in." The building is made to conform with the layout of the yard and the tramway often has a curve from 1/6 to ¼ or from 22½ to 90 degrees off a straight line. In some cases, in order to have the straight line from the pit to the point of unloading, the car goes into the poorest clay on the yard. Now, there is no mechanical reason why in a great many cases that a car could not be run in a "bee line" from clay bank to machine. For the looks of things an engineer would rather have a curved track than a car cutting into the shed at an odd angle. From the practical man's standpoint I much prefer to have a tram cut into a shed at any old angle than have a curved track. The mechanical difficulties in arranging for the odd angle going into the shed are more than compensated for in having a straight track. So cut into your shed at an angle in a straight line from the pit and you will save asking "Brick and Clay Record" a great many questions.—Wm. A. Butler.

What Becomes of Broken Cutting Wires?

Broken cutting wires usually fall or are thrown on the floor. Many of these find their way via the roustabout's shovel and the waste clay elevator to the pug mill, later to appear in the clay column and cause the breakage of more wires. With holloware machines it is possible for one of these broken wires to cause considerable loss by becoming entangled with the core stems of the die in such a manner as to split the ware, usually across one of the partitions. Although this split may reunite sufficiently to avoid detection on the cutting table it is liable to open up again in the drier. Some years ago I saw an instance where a half day's work was badly damaged from this cause. Since then, I have always made it a rule to keep a nail keg alongside the cutting table and insist on all broken wires being put therein, periodically depositing them at the farthermost limits of the dump. —Basil Copping, 705 S. Myrtle Ave., Kankakee, Ill.

Overcrowding Lamination.

Lamination is caused by the center of the column traveling faster than the outside. The general remedy is a change of dies but sometimes this does not overcome the trouble. Pugging your shale with hot water will help also. A lubricator on your steam pipe just above the die to feed oil in with your steam, also overcomes lamination.—N. Hermes, Redcliff, Alta.

Prize Problem Contest

In each issue of "Brick and Clay Record" a problem will be propounded to the readers—usually an actual experience of some clay worker, who, confronted with certain conditions, sought a solution and succeeded, or, having failed, still waits a Moses to lead him out of the wilderness. A special sprize of a paid-in-advance subscription to "Brick and Clay Record" for three years will be given for the best answer.

PROBLEM NO. 5:

What would you do if your fire brick, which always had burned uniformly and without trouble, suddenly came out of the kiln badly cracked? The cracks usually are on the edge of the brick and run towards the center for about one or two inches. The same clay is being used, the same methods of manufacture, the same dryer, the same kilns and the same men are utilized in the production as heretofore. The brick from one part of the kiln do not crack any oftener than in another part.

Send in your answer to Problem No. 5, so it will reach us before Feb. 20. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 6:

What would you do if you were going to install electric motors in your plant—use belt drive or connect them direct to the machines?

Send in your answer to Problem No. 6, so it will reach us before March 6. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 7:

What would you do if you had a competitor in your district whose labor, power, fuel and shipping conditions were better than yours, and who, despite his opportunities to obtain a greater profit by maintaining fair prices, insisted on placing his prices below what you yourself could sell for at a profit?

Send in your answer to Problem No. 7, so it will reach us before March 20. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

ANSWERS TO PROBLEM NO. 4.

The following answer by Arthur G. Bradley, manager Lincoln Clay Products Co., 9 Richmond Ave., St. Catharines, Ont., Canada, is awarded the prize on Problem No. 4. The winner's answer is:

Kiln space and drier capacity seems to be the trouble. I would say first to look into your efficiency department. Are you keeping those three kilns employed? You know the old slogan of an empty kiln? Taking for granted that your kilns are kept busy and your driers are taxed and you have no capital to substantially increase either, I would propose that you revert to a cheap out-door drier. Level off an area of ground, say beside your present drier, or some convenient spot to kilns and purchase a couple of tilting brick trucks which, by the use of one wooden pallette, one man handles 100 brick. Deposit the filled pallettes under cheaply constructed rows of canvas roofing. Use a 20, or more arch-kiln scove type, filling and firing half the kiln which is walled across while setters are filling remaining half. Thus, by either speeding up present machinery and increasing your men or by running a night shift capacity can be very cheaply increased for summer months.—Arthur G. Bradley, Manager Lincoln Clay Products Co., 9 Richmond Ave., St. Catharines, Ont.

Makes Three Suggestions.

If conditions were as represented I suggest the following solutions:

First.—It would be well to form a company whereby sufficient capital could be secured to make and build additional buildings, to install new machinery, to erect additional kilns.

Second.—Another plan would be to have a mortgage put on the plant to cover the amount of money needed to make the necessary improvements and to meet the increased demand in the business. This would include the introduction of new and up-to-date machinery, additional buildings and the necessary increased kiln capacity.

Third.—Advertise in a trade journal ("Brick and Clay Record", for instance), stating the amount of additional capital that would be required for your improvements, at the same time requesting a personal interview, and inspection of the plant. I also would show the amount of business being done with present plant and also show to the proposed investor what could be done with the new improvements if installed by additional capital put into the business.—E. J. Brown, 620 Arch St., Philadelphia, Pa.

Believes in Advertising.

The condition you name is ideal, and it would be no trouble to interest capital in a proposition of this kind. And you should lose no time in organizing a company and enlarging your plant up to the size of the demand. To fill a demand such as you mentioned I surely would advertise your goods and create a still greater demand. And of course the larger your plant the smaller will be your cost price per ton and the larger the profits.—N. Hermes, Redcliff, Alta, Canada.

Uses "How Cox Got Into the Game" as a Model.

Would suggest that to find an answer to this problem, the inquirer should carefully read the concluding chapter of "How Cox got into the Game," (page 228, Jan. 20 issue "Brick and Clay Record"), and if he is unable to induce some merchants or other business men, locally, who would doubly benefit by having a good paying business going in their midst and consequently increasing trade, there must be something wrong. I would suggest that he carefully prepare a statement showing his total cost of production, etc., and his prospective sales, and if such were as suggested in his inquiry there should be little difficulty in getting all the capital required to extend his business.—George S. Waterson, Big River, Saskatchewan.

To Keep Kiln Crowns Tight.

A better way to keep kiln crowns tight than a Portland cement slush is to use 40 parts Portland cement, 50 parts finely ground shale, and 10 parts salt thoroughly mixed and made into a thin slush. The shale and salt will not crack under fire, near as much as straight cement. If you can get them, 5 per cent wood ashes in the mixture will still be much better.—N. Hermes, Redcliff, Alta.

BE A BOOSTER.

Join the Chaldeans on this trip to New Orleans Convention. Write W. P. Varney and secure reservations.

Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Has Bloated Brick.

299. *Illinois.—We make an end-cut brick using a J. D. Fate machine and have down-draft kilns. Sometimes the brick from the top and half ways down, after being burnt, are round in shape and some people tell me that I put too much baking powder in them. I first thought it was because of setting the brick too wet, but later found that it was the same when the brick were thoroughly dried. What is puzzling me is that it only happens about every third kiln.*

We judge that he is up against black coring and bloating. The clay probably contains carbon or sulphur as iron pyrite, or both. If the clay contains carbon and the latter is not burned out (oxidized) at a low red heat, the gas from it at a high heat will generate faster than it can escape and in consequence the brick is bloated by the expansion of the gas. The burned brick when broken will show a black core and have a spongy appearance (vesicular structure) due to the included gas.

The baking powder illustration given is a very apt one. Just as the baking powder in biscuits forms a gas which, in its efforts to escape, develops pockets which gives the biscuit its lightness and sponginess, so does carbon gas act in clay ware. It is a common trouble and easily overcome if the carbon is not in too great excess.

It is necessary to hold the kiln at a low red heat until all the carbon is burned out. This can be determined by drawing tests from the kiln and breaking them. It is only safe to advance the heat when the dark core is no longer seen in the test bricks.

Iron pyrite ($Fe\ S_2$) behaves in the same way. Under heat treatment the sulphide breaks up and sulphur gas (SO_2) is developed. It is necessary to roast out the sulphur slowly in order to give it a chance to escape, but if it is driven out rapidly after the pores of the brick have been greatly reduced or closed by shrinkage, then the gas, the pressure of which is increased by increasing volume and by the expansion due to the advance in temperature, will bloat the bricks.

Sulphur is not so easily driven off as carbon. One molecule comes off at a low heat but the last molecule does not come off until a temperature of about 1600° F. is reached.

Hold the kiln at a low red heat until the carbon is burned out and at the same time the first molecule of sulphur will pass off. If there is a dangerous amount of sulphide present, it will show as a saffron core in the test brick after the black carbon core is burned out. Sulphur in large amounts is also shown by excessive blue smoke. If there is such excessive blue smoke then after the carbon is off the heat should be advanced by stages. Each advance will start off more sulphur which will show as blue smoke. When the latter becomes light, advance the heat, and thus work the kiln along until the blue smoke is all off or very thin and until it does increase with advancing heat, then the kiln may be finished off in the usual way without damage.

If the clay is surface material the chances are that the trouble is due to carbon, but if it is a shale or a deep bedded clay, the trouble may be carbon, or sulphur, or both.

We cannot explain why every third kiln has this trouble. We are not superstitious about the number three, nor thirteen, nor twenty-three. Several years ago while visiting a plant, after presenting our card and explaining our business, the superintendent said to us, "Come with me, I want to show you something." He took us to a dry press machine and pointing to the master gear, said: "I don't know why it is, but that wheel breaks every Tuesday." We did not know why that wheel should always break on Tuesday, nor do we know why every third kiln should show the "baking powder" effect. In our opinion, it just happens so.

We referred the same problem to another expert who replies as follows:

"Baking powder has the reputation of being quite some bloat producer, and your troubles in this respect would no doubt be ameliorated if the quantity of said baking powder were lessened somewhat. Seriously speaking, however, we infer that the "round" brick mentioned are brick which have bloated or bellied. The principal cause of this trouble is improper oxidation of the carbon content of the clay. The failure to oxidize the carbon in clay is in itself not so harmful in its effect, but the iron content is thereby changed to a condition in which it reacts very vigorously with the silica of the clay, forming compounds known as ferrous-silicates, which are very fusible, or have low melting points. It is evident that the carbon in a brick will be oxidized first on the surfaces, and that oxidation will be slower as we progress towards the center, due to the difficulty of the necessary air reaching it. When insufficient time and air are allowed to bring about the complete combustion of the carbon in the brick, we are confronted with the old problem of "black-coring," the outside of the brick being of the normal red color, while the interior, or the core, is black in color, due to the presence of carbon. The oxidation period is arbitrarily assumed to cover the temperature range between 1300° F. and 1650° F., and the kiln should be taken up rather slowly in this range to give ample time for oxidation. Draw trials will of course show when oxidation is complete as is evidenced by the disappearance of the black core. See to it that your fires are oxidizing during this period, by keeping open grates, etc. If insufficient time is allowed during this period and the kiln is taken on up, this black spongy interior melts and this process is accompanied by the evolution of gases which cause the brick to swell or bloat, leaving a space between the core and the outside shell. It should be understood that if the clay is not oxidized at the proper time it never will be, because as the temperature rises the porosity decreases, and the composition of the fire gases becomes less and less oxidizing. The fact that your brick are end cut tends to make oxidization more difficult because it can be seen that in that case a larger percentage of the surface of the brick has been in contact with the die, than in the case of side cut brick, and the result is of course a larger percentage of smooth surface, through which the air has much more difficult passage than through the surface made by the cutting wire. You experience bloating in the top courses because the top gets hot quicker than the lower part, where sufficient time elapses to bring about proper oxidization. We cannot attribute any other cause than mere chance, as an explanation of the fact that this difficulty occurs in about every third kiln."

Wants An Address.

315. *Ohio.—In the Dec. 16 issue of the Brick, under the "New Methods and Processes Department", we see an article written by E. Schmatolla on "A Simple Gas Producer." Will you please give us Mr. Schmatolla's address?*

Mr. Schmatolla's address is 154 Nassau St., New York City.

Drainage Journal.

312. *Michigan.—Can you give us any information regarding the name and address of a paper or journal treating on tile drainage on farms?*

"The Wallace Farmer", published at Des Moines, Ia., prints more information on this subject than any paper we know of.

Who Sells Elkhart Clay?

295. *Pennsylvania.—We wrote to the Elkhart Clay Co., Elkhart, Ind., ordering a few barrels of "Elkhart" Clay, but our letter was returned to us marked "Unknown." Can you give us the name of the persons handling this clay? We need some to try out a glaze we have formulated.*

We are advised that John C. Boss of Elkhart, Ind., is the dealer in this clay.

Wants a Promoter.

292. *Michigan.—Can you put me in touch with a promoter? I have a plant making tile solely for the local trade and have always been able to sell more than I can make. Could have sold double my output last season. The plant is in almost perfect condition. I am interested in other enterprises and would like to have a stock company formed to operate the plant.*

Can any of our readers suggest something to this subscriber?

Wants Clay Tested.

298. *Iowa.—Advise me when I can ship some clay for testing. Would want it made up into brick and hollow block. If possible how much clay will be necessary to ship and how much would it cost for the test?*

A number of our advertisers make a specialty of testing clays for brickmaking and other clayworking plants and we have every confidence in their being uniformly trustworthy. The Illinois State University at Urbana, Ill.; The Iowa College at Ames; Rutgers College, New Brunswick, N. J.; New York State School of Clayworking and Ceramics, Alfred, N. Y., and the Ohio State University at Columbus, O., all have ample facilities for making tests and it is unnecessary to say the results will be given you without bias. All the machinery manufacturers also maintain testing laboratories. Amounts of clay necessary for testing varies from 10 to 25 lbs., the latter amount when a test for commercial purposes is required. The cost varies, but runs from $10 to $25.

Books On Burning and Enameling.

324. *Ontario.—Send me a list of books which you list on brick burning in down-draft kilns and also on enameling and the prices.*

"Modern Brickmaking" by Searles, while not devoted exclusively to burning problems, contains several chapters on the subject and is about the best publication we have any record of. The price of this book is $5.

"The Manufacture of Glazed Brick and Sanitary Ware" is a most comprehensive publication on this subject and is listed by our book department at $2.50 per copy. There is another book printed on the subject of enameling, entitled "The Glazer's Book", by E. L. Raes, the price of which is $1. This is not quite so comprehensive but contains many very valuable recipes and formulas and would prove of aid to you. We would advise you to purchase one of these books on glazes, or both.

The Clay Show in 1915.

329. *Iowa—Will there be a clay show this year? If so please let us know where and when.*

310. *California—Could you be kind enough to advise us how or with whom we could communicate in order to ascertain what steps are being taken to prepare for the clay exhibit which we understand it is proposed to make at the "Panama-Pacific Exposition at 1915?" We have heard nothing so far regarding such an exhibit and we thought possibly that our information regarding it was erroneous.*

Secretary F. L. Hopley, of the Clay Products Exposition Company, in a letter answering one written by "Brick and Clay Record" asking what steps had been taken toward holding a clay show at the Panama-Pacific Exposition, writes:

"There has been no arrangement for a clay show at the Panama Exposition further than that which was decided upon at the National Convention in Chicago last March. The Clay Products Exposition Company would not attempt to put it on. It would entail a great expense and a vast amount of work which the Clay Products Exposition Company does not care to go into unless we could have the hearty support and co-operation of the entire clay trade and the publications connected with it. It may be that the National Convention at New Orleans will want to take some action on the matter."

From the above, it would appear that aside from a faint endorsement of the "idea," nothing has been done, up to this time. It is to be hoped that some real action—action backed by funds—will be taken at the coming convention of clayworkers.

Tile Puffs in Burning.

314. *Indiana—What causes drain tile to swell or puff in burning? We burn our tile in round down-draft kilns and until two years ago used wood for fuel and then we seldom had tiles swell and had a good burn on the bottom as well as the top. Since using coal, we seldom get a kiln burned good on the bottom unless we have the upper layers swelled. Is there any preventative?*

Your drain tile may swell on burning for several reasons, among them being, setting the ware wet, black-coring due to imperfect oxidation and finally, overfiring. There should be no difficulty in determining if either the first or last reasons is responsible, and the remedy is of course apparent in either case. If the second cause is responsible, it will be revealed by the presence of a black core in the center of the body of the tile. The trouble lies in the fact that the kiln is taken up too rapidly, not allowing sufficient time for oxidation of the carbon present. As the temperature increases, the surface of the ware, of course, becomes denser, preventing the escape of the gases resulting from the delayed combustion of the carbon which brings about bloating. The remedy is to take your kiln up more slowly between the temperatures of 1300° and 1650° F. within which interval the carbon oxidizes. Complete oxidation is, of course, revealed by the disappearance of the black core, as shown by draw trials. When this core has disappeared the kiln can be taken up at the usual rate. This trouble is experienced no doubt in the top courses, because in a down-draft kiln the top gets hot first. The lower courses rising in temperature more slowly have ample time for complete oxidation. Wood produces a longer flame when burning than does coal and this gives opportunity for the kiln to heat up more uniformly, thus avoiding the trouble, due to top getting hot first. This is a probable explanation of the fact that this trouble was not experienced when using wood as a fuel. It might be a good idea furthermore to change the flue system in the kiln bottom somewhat with the idea of getting the bottom hotter. See also reply to 299 Illinois.

American Ceramic Society Meeting.

371. *Pennsylvania—Will you give us information regarding the American Ceramic Society meeting in Wheeling, W. Va., Feb. 24-27? (1) Where will the meetings be held in that city (2) Is it customary for exhibits to be shown in connection with this meeting?*

(1) Stratford Springs Hotel, Woodsdale, a suburb of Wheeling. Members arriving by the B. & O. R. R. should walk one block north in Market street to 16th street, and take Elm Grove car. Get off at Woodlawn station and walk about four blocks to hotel. Those arriving on the Pennsylvania road should walk one block east in 11th street to Market and take the Elm Grove car. Room, single (with bath), $3.50; two (with bath), each, $3. Room, single (without bath), $2.50; two (without bath), each, $2. (2) It has not been customary for any machinery manufacturers to have exhibits at these conventions, but inasmuch as most of the delegates attending are interested in all new devices and methods, we see no reason why an inventor or manufacturer, who has something new to offer, should not exhibit a model.

Insulating Top of Kiln.

300. *New Mexico.—Can you advise us if it is customary to cover the top of a down-draft kiln with some heat insulating material like ashes? If so, can you advise the depth to which such material should be piled and if in the use of this any risk is run in subjecting the material in the crown of the kiln to so great a heat?*

Tops of down-draft kilns are frequently covered, and always should be. We pay too little attention to this. Commonly the crowns are covered with about one inch of clay mortar and then paved with bricks laid flat. This is good as far as it goes, but it is not sufficient for maximum economy in fuel. Ashes make an excellent insulating material but they are seldom used because they do not pack well, and in windy weather when dry they are blown about the yard. Loose clay is often used and it makes a good cover, but is not as good an insulator as ashes. It packs well and sheds water nicely, in both respects being superior to ashes. A crown covered with clay will not leak and if the clay is several inches thick, as it should be, a lot of heat radiating from the crown will be saved. A good waterproof cover is made by taking stiff mud blocks from the machine and paving the crown to a depth of three to four inches with them, followed by ramming to close up the joints. Such a cover will not readily wash away.

We have often thought that an excellent cover could be made by mixing ashes with clay, making the mixture into stiff mud blocks, and paving the crown. It would probably be necessary to use an old die and break the column into blocks as it comes from the die.

A good time to make these is just after putting on a new auger, because the ashes will smooth the auger and put it in shape to turn out the full output in starting on the regular clay product. The ashes will lessen the weight and materially reduce the conductivity.

If clay workers could be brought to realize the fact that the kiln radiation losses are 30 per cent to 70 per cent of the fuel fired in the furnaces, and that the greater part of this loss is through the crown, they would pay more attention to kiln insulation.

From an inch or two to six inches is the normal depth of the covering in this country where any cover is used at all, but in Germany it is almost universal custom to use a foot or more material over the crown.

If the crown is built of suitable quality of brick there should be no danger from the heat. If, however, the material in the crown is the same as the product in the kiln and the latter is burned to vitrification—a combination we often find—then a heavy cover over the kiln would be dangerous. In such kilns the crown is kept in place by the outer part of it which because of radiation losses never becomes red hot, but if such a crown is deeply covered, then the hard shell which keeps the crown in shape might become sufficiently softened to allow the bricks to squeeze and the crown to settle in consequence.

It is well established that a brick under pressure will lose its shape at a lower temperature than that of vitrification of the brick in question. The bricks in a kiln crown are under pressure and if covered so that the whole brick may be brought to a red heat (even below the vitrifying heat), it may deform and allow the crown to settle.

Steam Shovels With Circle Swing.

361. *Illinois—Will you give me name and address of a paper published in the interest of dredging? Several years ago the writer saw a machine at work in the Winnebago swamps of Lee County. It consisted of two large scrapers working in a semicircle delivering dirt on both sides of ditch, when one scoop was dumping the other was loading. If you know the makers of this machine, their address will answer, as I only wished the paper in hopes of seeing their advertisement.*

The publication you refer to probably is "The Excavating Engineer," published as a house organ by the Bucyrus Company, South Milwaukee, Wis., The office of publication is 267 National avenue, Milwaukee, Wis. The Bucyrus Company carries a regular advertisement in "Brick and Clay Record," and makes the type of shovels referred to. The Thew Automatic Shovel Co., Lorain, Ohio; the Marion Steam Shovel Co., Marion, Ohio, and the American Clay Machinery Co., Bucyrus, Ohio, are also manufacturers of this type of machines and all carry regular advertising in "Brick and Clay Record."

INFORMATION WANTED.

Wants a Location.

235.—Oct. 30, 1913, our plant was destroyed by fire, and we are now looking for a location, preferably in the Northwest. In looking over some back numbers of "Brick and Clay Record" we find that in the Dec. 16 issue, "235 Indiana" has a good opening for a brick and tile plant. If he has not found a buyer we would be glad to get in touch with him, as we want to get started again in the near future.

D. S. Payne, care Bippus Tile Co., Bippus, Ind., is the person referred to.

"Dubltex" Brick.

277.—Will you inform us who 277 Indiana is, referred to in "Question and Answers" Department as having begun the manufacture of Mr. Donahoe's new texture brick—the "Dubltex"?—The Pursell-Grand Co., 207 Mercantile Library Bldg., Cincinnati, Ohio.

277.—I would like very much to have one of the new "Dubltex" brick mentioned in your magazine. Where can I get one?—J. J. Waldinger, Superintendent, Corban Brick Co., Edenburg, Pa.

If our Cincinnati friends will write to the Bloomfield Brick Co., Bloomfield, Ind., they will be given all the necessary information. We suggest that Mr. Waldinger write to the Martin Brick Co., Empire Bldg., Pittsburgh, Pa. The Martin Company is selling agents in that territory for the Everhard Company, of Massillon, Ohio, who are the original manufacturers of this new brick. "Dubltex" brick is the invention of F. W. Donahoe, now associate editor of "Brick and Clay Record," but who, at the time of the evolution of the idea, was sales manager of the Everhard Company. Mr. Donahoe described the method of obtaining the double texture in the June 15, 1913, issue of the magazine, using drawings to make his description clearer. The Bloomfield Company, assisted by this description, since, we understand, has been making a similar brick with considerable success.

As to Continuous Kilns.

238.—In the Dec. 2 "Brick and Clay Record," under Question No. 238, the party desires to know something about continuous kilns. If it is not out of the ordinary and against the rules we would like to answer this question personally and would be pleased to have you send us their names and addresses.—G. C. Stoll, The Bonnot Co., 211 Higgins Bldg., Los Angeles, Cal.

This subscriber made a special request to have his name withheld. We will call his attention to Mr. Stoll's request and, in all probability, he will answer direct.

Silica Brick.

246.—In "Brick and Clay Record," Dec. 16 issue, "Question and Answers" Department, File 246, a New Mexico subscriber wanted to know something about the manufacture of silica brick. Will you give us his address?—G. C. Stoll, The Bonnot Co., 211 Higgins Bldg., Los Angeles, Cal.

George M. Wills, Western Clay & Gypsum Products Co., Ancho, New Mexico, is the subscriber referred to.

Seek Ohioan's Address.

236.—I have a good vein of shale and fire clay, close to railroad. Both veins are exposed and can be seen readily. I am working at a plant that has the same material and know the practical value of it. If 236 Ohio cares to see samples would like to submit same.—James Wiandt, R. F. D. No. 4, Newcomerstown, Ohio.

236.—Would like to get in touch with 236 Ohio as I am sure I have what he is looking for.—A. L. Stump, Knobnoster, Mo.

Miss Rose Bohler, care Ohio and Western Lime Co., Marion, Ohio, is the person mentioned in File 236 Ohio, "Question and Answers" Department, Jan. 6 issue of this journal.

Who Handles Rutland Clay?

372.—We will be pleased to have some information in regard to Rutland fire clay. The source of this clay is Rutland, Vt. Kindly advise if there are any dealers handling this clay in this vicinity.—F. R. Holmes & Co., 710 Penobscot Bldg., Detroit, Mich.

Will some of our readers supply the information to our Detroit friends?

Asks for Addresses.

365.—Wire us collect the address of the manufacturers of Queens Run and Crown Point fire bricks.—Beder Wood, Moline, Ill.

This request came by telegraph and we immediately telegraphed the following: "Crown Point Fire Brick Works is at Brooklyn, N. Y., and Queen Run Fire Brick Co., Lock Haven, Pa." We also wrote both firms telling them of the inquiry but the Crown Point letter was returned to us as "not in the directory," by the Brooklyn postmaster. Evidently our information as to this concern's address is wrong. Will it please advise both Mr. Wood and ourselves?

Wants Roofing Tile.

370. George Padbury, Halstead, Ia., wants to buy tile shingles. He has written "Successful Farming" for the name of some firm handling same and this publication has referred the letter to me. In turn I refer it to you.—C. B. Platt, Secretary Iowa Clay Manufacturers' Association, Van Meter, Ia.

369—Indiana—Please give us the names of some manufacturers of clay roofing tile. We want something similar to the cement shingle.—Sweetser Drain Tile Co., Sweetsers, Ind.

Will dealers and manufacturers get in touch with Mr. Padbury and the Sweetser plant?

Wants Silo Block Literature.

365. I am interested in the manufacture of silo block and would like to have any literature used by manufacturers of the material, as well as information from the machinery manufacturers.—F. W. Vonoven, Naperville, Ill.

Will our readers who are in a position to comply with this request send him their literature? We have advised the machinery makers.

Wants Hard-Burned Brick in Texas.

364. We have a customer in Naperville, John Sigmund, who has a farm at Delhart, Texas, and who wants about two carloads of hand-burned brick for constructing a silo—the sort that is built in the ground, cellar-like. We suggest that manufacturers in that vicinity or in shipping proximity get in communication with him.—Markin & Vonoven, Manufacturers, brick and tile, Naperville, Ill.

This tip from our Naperville subscriber is submitted to those interested. We also suggest that the manufacturers of silo tile block send him literature and suggestions. Mr. Sigmund's home address is at Naperville. The only names of vitrified brick manufacturers in the neighborhood of Delhart are the Coleman Vitrified Brick Co., Coleman, Tex., and the Seguin Vitrified Paving & Face Brick Co., Seguin, Tex. The following firms make dry dressed brick whose product in nearly all cases are hand-burned: Athens Pressed Brick Co., Athens, Tex.; Corsicana Brick Co., Corsicana, Tex.; Texas Fire Brick Co., Elgin, Tex.; Crisp Pressed Brick Co., Crisp, Tex.; Atlas Pressed Brick Works, Dallas, Tex.; El Paso Brick Co., El Paso, Tex.; Texas Pressed Brick Co., Ferris, Tex.; Cobb Brick Co., Fort Worth, Tex.; Butler Brick Works, Houston, Tex.; C. E. Williams Brick Co., San Antonio, Tex.; Thurber Brick Co., Thurber, Tex.

302.—I have your favor of January referring to the Stark Brick Company, of Canton, Ohio, as a satisfactory manufacturer of salt glaze brick, and I immediately wired them, asking them to send me samples of their product, also quotations, and stating that you referred me to them. I wish to thank you very much for your courtesy and anything else with which you can favor your subscriber would be greatly appreciated. I do not know whether these people are represented in the Eastern market, but I have applied for the New England agency. If any other concern should occur to your mind—in case I am not successful with the above named, please advise—John W. Hahn, 166 Devonshire St., Boston, Mass.

Mr. Hahn, on page 387, of the Feb. 3 issue, wanted to know of manufacturers of salt glazed brick, outside of Nelsonville and Sparta brick (who already have agencies in the East), with the idea of making an agency connection. We referred him to the Stark Company and suggested through this column that other manufacturers write him. This suggestion, in view of the second letter received from Mr. Hahn, seems still to be in order.

176.—In your issue of Jan. 6 (Annual Review Number) we note that you have given our address to parties furnishing red-burning sand. The only samples we have received are from the Beaver Tile & Brick Company, of Beaver, Ohio, and C. W. & W. L. Taylor, of Sandusky, Ohio. Be good enough to look this up inasmuch as neither of the samples received have proven satisfactory.—The Heinz Roofing Tile Company, Third and Tejon St., Denver, Colo.

The two firms mentioned above are the only ones that have responded. The query published in the Jan. 6 issue was from one of the two mentioned. We had sent the information by mail sometime previously.

ANSWER BY READERS.

Street Car Advertising.

276 Minnesota—Referring to your subscriber in the Jan. 10 issue, page 250: We have had better luck with street car ads than with any other method. If you will refer your correspondent to us, we will give him a line on it. For the reason you name, we did not attempt cuts. We made them read our ads because they were to the point, and so worded to make them be remembered afterwards. That is about all there is to advertising, after securing attention. Here is one: "No mortgage drawn by Man can outlive a Brick House." Another is: "Raise your Children in a House that a Cyclone Can't Raze." We write our own ads—it's cheaper two ways.—Citico Brick Co., Chattanooga, Tenn.

As to Insulating Top of Kiln.

300 New Mexico.—In "Questions and Answers" Department, Feb. 3, a reader asks about insulating top of kiln. It is by no means unusual to cover the crown of a kiln with some insulating material like ashes. It should be applied in a layer of at least 3 or 4 inches thick to be effective. There should be no danger of overheating the crown of the kiln if the brick are any good, but if they are of inferior grade, care will have to be exercised, or the crown may collapse.—C. S. Kinnison, Pittsburgh, Pa.

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In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

The A. T. Small Brick Company, successors to the W. H. Jones Brick Co., of Macon, Ga., will increase the capacity of the plant in the near future.

B. K. Lawson, warden of the Oregon State Penitentiary, at Salem, Oregon, wants catalogues and descriptive literature on drain tile machinery.

J. R. Farnham, manager of the Flour City Brick Co., 3418 Marshall St., N. E., Minneapolis, Minn., is interested in a clay shaving device, similar to the "Buckeye" machine.

Thomas Young, of 321 Sherman Ave., Coeur D'Alene, Idaho, writes that he has a tract of clayland, and will, in all probability, put up a plant this summer.

M. C. Madsen, Hutchinson, Minn., wants some method of clay storage. He washes his limey clay by a German process, which requires a storage capacity for one year.

Dr. J. W. Pryor, of Lexington, Ky., will, in all probability, put up a clayworking plant near Paducah, Ky. What ware will be burned is not announced.

O. C. Rairigh, of Kittanning, Pa., is working on plans for a new brick plant to be built in Columbia county, Pa., for the Nonticoke Brick Company. Bids will be called for, shortly.

The Carlinville (Ill.) Clay Company has been incorporated, with a capital stock of $20,000. Incorporators: Charles G. McIntosh, Elmer Woolley and Charles H. Woods.

A fire that started Jan. 12, nearly destroyed the plant of the United States Sewer Pipe Company, at Annabelle, W. Va. Nothing but the walls were left.

The Brownwood (Tex.) brick plant, formerly owned by J. D. Fay, has been sold to a company of local capitalists, who will enlarge the plant.

The Danville (Ill.) Brick Company will enlarge its plant and increase its capacity. Additional kilns will be erected, a new shale pit opened and new machinery will be installed.

The Petersburg Fire Brick & Tile Co., of Coal Grove, Ohio, is about to put in a full line of machinery for the manufacture of paving brick; up to this time, their output has been high grade fire brick only.

F. Titterington, of the Argillo Works, 12 Second Ave., Rock Island, Ill., is interested in a clay shaver similar to the one in use at the plant of the Indiana Brick & Tile Company, at Brooklyn, Ind., which is made under the Powell patent.

George Walters of Chatsworth, Ill., is trying to solve the problem of conveying his clay economically, from the storage bin in his pit to his factory, distance of 200 yards. He seems to be interested in some sort of belt conveying system, if it is not too expensive.

The Toronto, Ont., "Star" announces that a group of New York capitalists have leased a site at Coldbrook, and will, as the Dominion Motor Car Co., Ltd., erect an automobile factory and a brickmaking plant.

F. W. Kruse, of Marshfield, Oregon, has sent "Brick and Clay Record" some clay for analysis, saying that he wants to know if it is of any commercial value before he invests in machinery. See his letter in the "Question and Answer" department, Feb. 3rd issue, under file No. 291.

The Gates Sand Company, of Hinton, W. Va., has been incorporated, to manufacture sand-brick and tile. The capital stock is $10,000. Incorporators are: J. A. Gates, of Charleston, W. Va.; George O. Quesenberry, M. A. Boland, C. W. Johns, A. A. Riddleberger and R. F. Dunlap, all of Hinton, W. Va.

The Centreville (Iowa) Brick Company has made arrangements for enlarging its production during the present year. Part of the machinery has been ordered, including a five-mould brick press, from the Illinois Supply Company of St. Louis, Mo., and a nine-foot dry-pan from the Eagle Iron Works at Des Moines, Iowa.

The A. C. Ochs Brick & Tile Co., of Springfield, Minn., write that it expects to erect a modern plant during the coming Summer, and that it will be run the year round. No additional power will be required, as enough has been installed in the old plant, to run both the old and the new.

B. W. Figgins, of 410 N. Pulaski St., Baltimore, Md., wants information, prices, etc., on boilers and engines, brick making machinery, dryer and transfer cars, clay feeders, kilns and kiln equipment, pyrometers, rails and industrial locomotive equipment, shovels, etc. Mr. Figgins is preparing plans for a fully equipped brick plant and wants these figures promptly.

The Lockport (N. Y.) Shale Brick Company has been orgnaizen, with a capital stock of $50,000. Theodore H. Swan, Powers Block, Rochester, N. Y., is president. The company will commence operations at once, putting in a plant for the manufacture of a high grade face brick, on the John Davis Farm, on Niagara Road, Lockport. It is planned to have the plant ready for operation by April 1.

The Atlantic Terra Cotta Company has declared a quarterly dividend of 1 per cent on its preferred stock, payable to shares of record as of Jan. 22.

The Queen City Brick & Tile Company, of Cumberland, Md., has elected W. C. White, president; F. A. Blaul, treasurer, and C. C. Hetzel, secretary.

W. S. George has taken over the pottery plant of the old Wick pottery at Kittanning, Pa., and will put it in operation immediately. This gives the George interests four plants, one at Kittanning, two at Cannonsburg and one at East Palestine, Ohio.

The pottery at Mt. Gilead, Ohio, that bears the name of that thriving town, reports its 1913 output oversold to such an extent that additional machinery and kiln equipment had to be installed to take care of the reorders and new business that fell to its lot.

Harry S. Maddock, who for years has been the head of the Thomas Maddock & Sons Company, of Trenton, N. J., died at his home in Trenton, N. J., January 25. He was a strong factor in Trenton's industrial life, being an active member of several successful manufacturing concerns, as well as being one of the directors of the Mechanics National Bank.

The following directors were elected at the annual meeting of the Ohio China Company, of East Palestine, Ohio, held Jan. 27: R. F. Taggart, L. D. Overlander, F. G. Rigby, C. A. Lentz, D. H. Mackintosh, George Kinney and D. W. McClosky. C. A. Lentz was elected president; L. D. Overlander, vice-president; D. H. Mackintosh, secretary and treasurer.

The plant of the Dillsburg Brick & Tile Company, of Cumberland, Pa., built slightly more than five years ago, at a cost of $165,000, was sold at public auction, Saturday, Jan. 24th, for $5,010. The machinery was in excellent condition and five acres of good clay land were included in the sale. It looks as though some one had secured a bargain.

The annual meeting of the Foster Paving Brick Company, of Bradford, Pa., was held at the office of the company, recently. The following officers and directors were elected: C. E. Foster, president and general manager; W. W. Bell, vice-president; G. W. Foster, treasurer; William A. Palmer, secretary; Thomas B. Crary of Binghamton, N. Y., and Harlow E. Brundy, of Endicott, N. Y., were also elected as directors.

The Independent sewer pipe plants in the Ohio Valley and the Irondale, Ohio, district are operating, so it is said, with reduced forces, but with sufficient capacity to take care of all new business with promptness. The general tone of the market, with reference to prices, is firm. All manufacturers in these districts have some good orders on their books, but shipments have been held up until the weather opens.

An invention which is believed will revolutionize the stoneware pottery industry has been perfected by Wilson Burley, superintendent of the Keystone pottery, at Crooksville, O. All tests of the method have been quite successful, and patents have been secured by the inventor. Mr. Burley's new idea is original and deals with a quick way of burning stoneware. It is said that potteries that will use the new method will save time and money.

That the potters at work in the Newell, W. Va., factories are prosperous and have interests outside of their wage-earning jobs, was instanced in the information learned today, to the effect that six local men have just purchased $3,600 worth of real estate in Florida. Each purchaser has acquired ten acres of land in the Indian river district of Florida, on the southeast coast of the state. It is planned to convert the land into orange groves, and at the same time, perhaps, to establish a colony there, as the six tracts adjoin one another.

At a meeting of the stockholders of the Mack Manufacturing Company, held at the offices of the company in New Cumberland, Pa., the following officers were elected: James Mack, of Philadelphia, president; S. G. Gaillard, vice-president; Baird Mitchell, of Wheeling, secretary; S. G. Gaillard, treasurer and general manager. Joseph Mack will have charge of Eastern sales. The main offices of the company have been located in New Cumberland for some time. C. A. Young will continue in charge of the Pittsburgh, Pa., sales offices.

The Haeger Brick & Tile Company, of Aurora, Ill., is making a bid for the flower-pot business of the country, and is said to produce more of this ware at its Dundee, Ill., factory than any other plant in the Middle West. The popularity of this ware is due, to a great extent, to oversizes. The pots made by this concern have plenty of room at the top, which obviates crowding in soiling the plants, and in washing. A brimful pot is prone to give a hard caked surface through hose-watering and thus fails to take the moisture properly.

Some weeks since, a stranger, who hailed from a Middle West city, created some comment in Abbeville, S. C., by looking over some property there, which, he explained carefully, he wanted for a chicken farm. He secured options on the property and went upon his way. It developed later that the property included some extremely valuable kaolin deposits, and that the supposed chicken farm was a seven-acre bed of this valuable mineral. A charter has been granted to A. J. Hennings and others, of Chicago, to operate a mining company on the site.

China importers were given another jolt last week when the government entered suit in New York against Theodore Haviland & Co., the Fifth avenue importers, to recover $1,200,000 alleged to be due on imports which were undervalued by fraudulent invoices. This suit, following so closely on the suits entered against other china importers several months ago, is taken to mean that the government is determined to test the truth of the assertion that china is being brought into the country at much less than the real valuation, and the government is in consequence determined to collect if it was found the undervaluations have been deliberate and with a view to evading responsibility for the full legal duty.

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The Sibley Brick Company has been incorporated at Birmingham, Ala., with a capitalization of $150,000.

The Midland Tile Works, of Midland, Mich., has filed articles of incorporation with a capital of $10,000.

The Vivian (La.) Pressed Brick Company has been organized. J. M. Flanery, of Tyler, Tex., is in charge.

The Standard Brick Mfg. Co., Evansville, Ind., will erect an addition for the manufacture of hollow-tile.

The Texarkana (Tex.) Brick Company sustained a loss of $7,000 through a fire that was discovered Jan. 24th.

A fire at the Mercer Pottery Company at Trenton, N. J., which occurred on Jan. 26th, is reported to have damaged the plant to the extent of $7,000.

The Kenilworth Brick Company, of East Liverpool, Ohio, will increase its capacity and is in the market for additional machinery.

Plans are in progress for a one-story brick fireproof brick plant, to be constructed for the Climax Fire Brick Co., at Climax, Pa., at cost of $125,000.

It is reported that J. H. Houck, Springfield, Ohio, will erect a plant for the manufacture of brick, at Bluefield, W. Va. The daily output is estimated at 50,000 brick.

The Jourdantown Brick & Tile Company, of Jourdantown, Atacosa County, Texas, has incorporated with a capital of $10,000. E. Danal, W. H. Hill and H. G. Burkhalter are the incorporators.

A $300,000 brick manufacturing plant is going to be put up in Port Arthur, Tex. The company is not incorporated as yet, but will be, in the near future. It will be known as the Port Arthur Brick & Tile Company.

Incorporation papers have been asked for, by John Z. Ryan, representing the Phoenix Brick Company, of Savannah, Ga. Hugh McCormack and W. J. Ryan are associated. Capital is given as $3,000.

At the annual election of the Ionia (Mich.) Pottery Company, Fred Cutler, Jr., was re-elected president; Royal A. Hawley, vice-president; Harvey E. Kidder, secretary and treasurer and Henry Witzel, superintendent.

The Salina (Kas.) Vitrified Brick Company will install a dry-press brick machine and a larger dry-pan than that previously used. J. W. Neptune is president; R. S. Turner, vice-president; F. C. Hadden, secretary and manager; F. W. Ekstrand, treasurer.

The Van Cleve Clay Manufacturing Company, Mansfield, Ohio, has been incorporated with a capital stock of $68,000 to manufacture and deal in clay and clay products. The incorporators are: S. Van Cleve, H. E. Southard, William R. Gilbert, W. F. Hatcher and J. R. Marsh.

The Big Savage Fire Brick Company of Cumberland, Md., has enlarged the capacity of its plant at Allegheny, Pa., by recently erecting a new kiln with a capacity of 50,000 brick. Ground has been broken for the building of another one of like capacity and as soon as the weather permits work will start.

The Winber Clay Mfg. Co., of Johnstown, Pa., has been incorporated with a capital of $30,000, for the purpose of manufacturing and selling brick, tile, terra cotta, pipe and other articles made from shale and clay. The incorporators are: R. E. Keedy, Charles H. Suppes, Jr., Arthur Griffith, all of Johnstown, Pa.

Harold Parker, M. Am. Soc. C. E., manager Hassam Paving Company, Worcester, Mass., on February 5th, delivered an illustrated lecture on "Responsibility of Contractors for Construction of Roads and Pavements Designed by Engineers" before the Graduate Students in Highway Engineering at Columbia University, New York City.

J. R. Ryan, manager of the Hamburg (Pa.) Vitrified Brick Company, writes that his company is contemplating the erection of a new plant, with a daily capacity of 40,000 paving brick. It has ample land and desires to place buildings and kilns to best advantage. It is suggested that efficiency engineers as well as manufacturers of clayworking machinery get in touch with Mr. Ryan, also plant, kiln and dryer engineers.

The Bessemer Limestone Co., with offices in the Stambaugh building, Youngstown, O., will start work at once on building an addition 100x800 feet steel construction, which will be used for the manufacture of brick. The building will have concrete footings, corrugated iron roofing, etc. The steel work will be furnished by the Riter-Conley Manufacturing Co., Pittsburgh. New kilns will be erected for which fire brick will be required.

The Acme Roofing Tile Company, the Goodman-McCormack Company and the Des Moines Clay Manufacturing Company have merged, forming the Des Moines Clay Company. The new corporation will be capitalized at $400,000 and the offices will be in Des Moines, Iowa. The officers are F. C. Hubbell, president; Leon Goodman, vice-president and general manager; I. M. Earl, secretary, and Charles G. McCormack, treasurer and sales manager.

The Ladysmith Brick & Tile Company, of Ladysmith, Wisconsin, are working on plans to install considerable machinery, and when the plans contemplated are completed, the concern will have practically a new outfit throughout. Manager Ray Fillmore states that they will greatly enlarge their output this season and will begin operations about May 1. It is understood the company have several large orders already booked which warrant the expenditure for new machinery.

The Little River Brick & Tile Company has been incorporated, with its principal office at 15 Quelette Avenue, Windsor, Ont. The plant will be built at Little River, in Sandwich West Township. The property contains 50 acres, lying adjacent to the Canadian Pacific tracks. About $30,000 worth of machinery will be installed. The directors of the company are George W. Williams, Sr., Edward Wigle and Mayor Henry Clay, of Windsor, Louis Knauss and George W. Wiliams, Jr.

Reports of fire losses in the year 1913, as issued by insurance interests, showed a remarkable decrease. The total property loss was $203,408,250, as compared with $207,453,900 in 1912. The largest fire of the year was the one at Hot Springs, Ark., which burned over thirty-two and one-half blocks, consuming 518 buildings.

John T. Moore, former mayor of Macon, Ga., and associated with several important business organizations of the South, recently assumed the management of the A. T. Small Brick Company. This plant was purchased recently from W. Henry Jones for a consideration of $100,000. It is proposed to double the capacity of the plant next Summer and make it one of the biggest plants of the kind in middle Georgia.

According to the Rockland (Mich.) "Reporter." the finest deposits of pure kaolin or "slip clay" as it is commonly called, are located along the east bank of the river in Rockland township, on the Emmond and Vogtlin farms, and near the old Forest landing, the latter owned by Francis Jeffs. Government analyses have proven this clay free from grit and the purest in the country. For years, the product has been in demand in the pottery works in Ohio, and is increasing yearly.

Machinery has been ordered for a brick and tile factory at Forest City, N. C. The plant will be located just within the corporate limits, near the Seaboard depot, and will be one of the largest of its kind in western North Carolina. C. C. Whitaker, manager of the company, states that operations will be fully begun by early Spring. The plant will be operated by steam and when complete will turn out 1,000 bricks an hour. It will be equipped with modern machinery throughout. Almost every grade of brick will be manufactured, most of the clay for this purpose being close at hand. The manufacturing of tiling will be given special attention, as there is no tile plant nearer than Pomona. The company will begin operation with a capital of from $5,000 to $10,000, which will be increased.

Patents New Brick for Big Sewers.

A thin, wedge-shaped brick, so designed that it will make a perfect arch with a very thin mortar joint, was recently patented by the Los Angeles Pressed Brick Company, of Los Angeles, Calif. Dies are being made for the special molds required for any size of sewer and the company will compete for the large sewers and storm drains with this brick. The new brick is expected to fill all requirements, in addition to reducing the cost of brick sewers to a point where this type of construction will become popular for diameters too large for the use of vitrified clay pipe. It will be easily and cheaply made and the two longitudinal holes are expected to provide sufficient drainage during construction so that an underneath drainage pipe line will not be necessary.

Illinois Brick Company Shows Big Profits.

The Illinois Brick Company, which controls practically all of the common brick produced in and for the city of Chicago, earned 13½ per cent on its preferred stock in 1913. This records a high level of profits, exceeding the amounts earned in 1911 and 1912.

In his report to the stockholders, President Schlake said: "The earnings of the company for 1913 were the largest of any year in history, namely, $593,607.54.

"At the end of 1913 we had on hand a much larger supply of brick than a year ago. The favorable weather of the closing months enabled us to run all of our plants to their fullest capacity, and thus permitted us to accumulate this increased supply. This large stock will make it possible to avoid the rush usually incident to the opening of business in the Spring, and will make it easy for us to supply the demands of our customers.

"Our plants are in a state of high efficiency. They have not been permitted to run down. On the contrary, every year has some betterments of plants to its credit, and 1913 is not an exception."

The income accounts follow:

	1913.	1912.	1911.
Net profits	$593,607	$591,454	$460,735
Dividends	242,000	176,000	88,000
Reserve	332,055	380,065	317,837
Surplus	19,552	35,389	54,898

The balance sheet, with comparisons, is given below:

ASSETS.

Real estate	$1,151,274	$1,147,456
Buildings and machinery	4,386,505	4,063,312
Stock in treasury	600,000	600,000
Accounts receivable	425,299	419,295
Inventories (brick supplies)	439,028	310,348
Bills receivable	67,699	34,220
Cash	50,321	48,634
Totals	$7,120,127	$6,623,266

LIABILITIES.

Capital stock		$5,000,000	$5,000,000
Accounts payable		147,528	144,275
Bills payable		325,000	172,000
Dividend payable Jan. 15, 1914		132,000	88,000
Reserve for taxes		25,000	25,000
Reserve for depreciation:			
1910	$181,099.26		
1911	317,837.00		
1912	325,064.96		
1913	307,055.35		
		1,131,056	824,001
Surplus		359,542	369,990
Totals		$7,120,127	$6,623,266

In the election of directors, E. A. Thomas succeeded C. B. Ver Nooy, but the directory re-elected the old board of officers.

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Seattle: 617 Western Ave.
Montreal: 286 St. James St.
St. Paul: 1308 Pioneer-Press Bldg.
Winnipeg: 45 Canadian Life Block
New York City: 362—50 Church St.
Vanconver: 175 Cordova St.

Trade Reviews

NEW YORK.

BY ALLEN E. BEALS.

Special Staff Correspondent.

ONE of the reasons why common brick in the East has been in the doldrums while all other building materials have felt an improvement in business is the impression that has gained an almost general mind-hold in New York and vicinity that there is some danger of a brick famine's coming and that commodity's reaching almost unprecedented price levels. The damage that has been done by the circulation of this report cannot be measured, but since steps have been taken to counteract its effect, business has been more brisk.

The day is past when the New York common brick market can be manipulated arbitrarily. Portland cement is too powerful a factor as a rival building material and now that gypsum has gained something like formal recognition as a fireproofing material, builders have concluded that if there is any doubt at all about getting brick when they want it, and at prices that are at least logical, and based on supply and demand, they will induce architects to stand for a change in specifications and permit the use of substitute material.

As far as your correspondent has been able to learn, and the information comes from the floor of the Building Material Exchange and from architect's offices, a great deal of such substitution has been going on in this city during the last three months. Since the first of the year a careful investigation has been made of the available quantity of brick on the river and at the wholesale docks here and at distributing berths and it has been proved to the satisfaction, at least of those who order brick for building purposes, that instead of there being a shortage of brick, there is a supply entirely ample to take care of all the requirements that New York will have during the remainder of the Winter. In fact, it is now extremely doubtful if the Hudson river manufacturers will start the operation of their yards at the usual time.

These are the actual conditions as they exist in this district at present:

There are 36,400,000 common brick open and covered at the West 52nd street wholesale docks.

There are 11,300,000 common brick lying about the city at distributing docks.

There are 95,000,000 common brick in shed in the Hudson district, within a day's towage from New York, and ready for immediate shipment.

There are 50,000,000 common brick available for immediate shipment in the Raritan district.

This makes 192,700,000 common brick available for consumption in this market between date of this writing and the reopening of the brick making season in May.

During 1913, the quantity of Hudson river brick that was used in this market, was 768,250,000 which, with 114,937,500 from the Raritan district, made a total of 883,287,000 brick.

The average consumption of common brick by months in this market is 73,600,000 and in three months 220,800,000 will have been put into buildings here.

If that is the average movement of brick for three months in New York and vicinity without regard to season, then, in a comparatively dull period in the year like February, March and April, 192,700,000 common brick easily can take care of New York's requirements, especially when boom conditions do not exist.

Yet prices have been advanced.

As a matter of fact, the brick quotation range is wider here today than it has been in a long time. One quotation is as good as another. All mean little except to the man who wants spot brick and who is getting direct quotations either from the distributor or from the brick manufacturer himself. And here opens another story.

The average Hudson brick manufacturer is firmly convinced that somebody has absconded with all the cash in the country. He needs money badly, yet he cannot move his brick in New York because of the scare that has pervaded the market regarding the possibility of a brick famine. So he has come into the market, figuratively taking his barge load of brick under his arm and has sold it for cash wherever he could find a purchaser. With the official price range quoted at $6 to $6.50, that same manufacturer has gone into dealers' offices and has come out some time later with his brick in the back yard and $5.25 in his pocket—and chuckling.

The result is that the market has been called weak when other departments of the building material market have been strengthening. It is all due to that insidious scare that has been put into New York architects and dealers. The dealers, at least those not properly advised, have thought more of their money in the bank than in loading up on brick when they are plentiful, in the vague prophesy that there was going to be a great shortage. They simply returned the argument that there was going to be a shortage in building construction, too. If brick was going to be so scarce, why were prices held so low? They got no answer to that until, suddenly, prices did move up a half a dollar, but they found by that time that the rumors that originally were designed to induce dealers to stack had reached men who figured that if there was going to be any doubt about getting brick they would specify a substitute rather than run the risk of having operations retarded when they wanted filling material.

As far as the prospects for burned clay products here in the East are concerned, they look promising. This statement is based upon the behavior of the mortgage market. During January the state had a highway bond sale which was six times oversubscribed. If any body wanted proof that there was plenty of money available for investment purposes despite the cry of shortage of money elsewhere, all that was necessary to show that investors had the wherewithal to finance good investments was to turn to the house of Kuehn-Loeb; private bankers, at that.

Ever since that day money has been easier here. Mortgages have been a better commodity and assigned mortgages have increased in volume. In the week ending February 7 there was a bookage of more than 5,000 tons of fabricated steel whereas hundreds of tons had been the rule rather than the exception in the month of January and December with the exception of subway steel tonnages that do not take classification as building orders. Such a tonnage as that alone means a million and a half connom brick and about one-third of a million face brick, not to mention the volume of terra cotta fireproofing and floor spans that will go into that assortment of buildings.

That is only one angle of the improving condition of the market. The other is that steel prices have been advanced for first quarter deliveries and they are already high for second quarter shipments. If other building commodities follow the lead of steel, and they invariably do in normal times, the future for burned clay building products here in the East is a whole lot better than it was.

TRENTON, N. J.

BY HARRY SHERMAN.

Special Staff Correspondent.

The completion of the deepening of the Delaware river, from Philadelphia to Trenton has caused a slight wave of optimism to pass over this historic city, and Trenton business men hope to enjoy more of Philadelphia's trade than they have been able to secure in the past. New boat lines are being made ready and the city will build docks as soon as the ice is cleared up.

Trenton is a busy place and a large industrial center. It is particularly well known, as an important pottery city, East Liverpool, Ohio, and Newell, W. Va., being its only rivals.

The output is heavy of porcelain electric fixtures and many plants are engaged in this line of manufacturing. Some firms make door knobs, others make stilts and pins, which are used to set other ware on in the kiln. The firms making machinery have done very well and have been of late years selling considerable to foreign countries, Japan in particular. Much clay, feldspar and flint is ground up and sold here to manufacturers in other states and a large business is conducted. There are several large mills grinding up these lines and always keep busy. There is no terra-cotta, drain-tile, sewer-pipe or fireproofing made here, as the right kind of clay is not obtainable.

There are about a dozen good plants making common brick and they are always busy, the output generally sells here readily, although considerable is shipped to Philadelphia and other points. There is some face brick made also. There are several plants making the fire beleek, bone china, which is the highest grade and is as good as the best made abroad. This china is used much by the hand decorators throughout the country and is also used for silver deposit on china. There are a number of decorating shops in this city that do that work only and are included in connection with these industries. Crucibles are also made by a large firm and these are made of German clay and plumbago, being used as melting pots by the brass and bronze founderers, the jewelry manufacturers and silversmiths. The plumbago comes from the island of Ceylon.

The making of decorative tile is one of the main industries, hand and machine made. These are beautiful works of art and adorn the public buildings, schools, libraries, colleges, hospitals, etc., throughout the country. Many swimming pools are made entirely of this tile to-day. Much of this tile is also exported to foreign countries and this line is increasing. It is made in all colors and has helped to create a name for Trenton, world-wide. There is a fine line of vases, college goods and all kinds of novelties made of clay and there are some pretty specimens of the clay working lines. The Industrial School of Arts in this city has done a great deal towards furthering the clay working lines and is an institution of which this city is proud.

SAN FRANCISCO, CAL.

By ALLEN PRESS.

Special Staff Correspondent.

January was a poor month for building in most of the Pacific Coast cities, but for the last fortnight weather conditions have been better, and work is going ahead more actively. The most notable improvement, however, has been in the financial situation, which has eased to such an extent that considerable money is available for building operations, as well as for general improvement and development operations. The effect is not very apparent in the building trades, which are still comparatively quiet, but local brick men are confident that the latter part of the year will be a season of great activity. Aside from better money conditions, the crop outlook since the rains is about the best in the history of the state, assuring another year of active building in the interior towns.

While sales of common brick for 1914 delivery have already been large, the best price so far has been $6.50 per M, and no advance is expected. Though several plants have been dismantled, there are still quite a lot of soft-mud plants that

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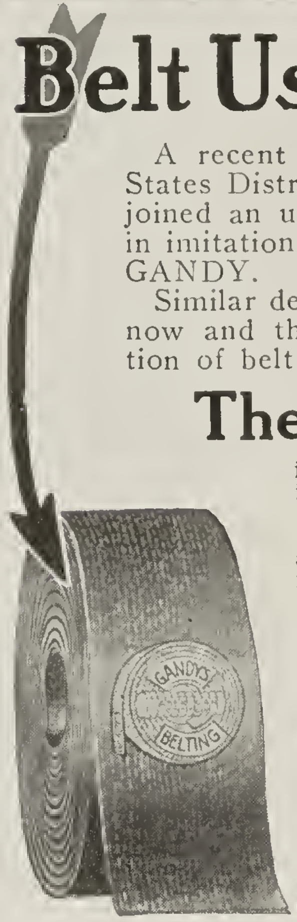

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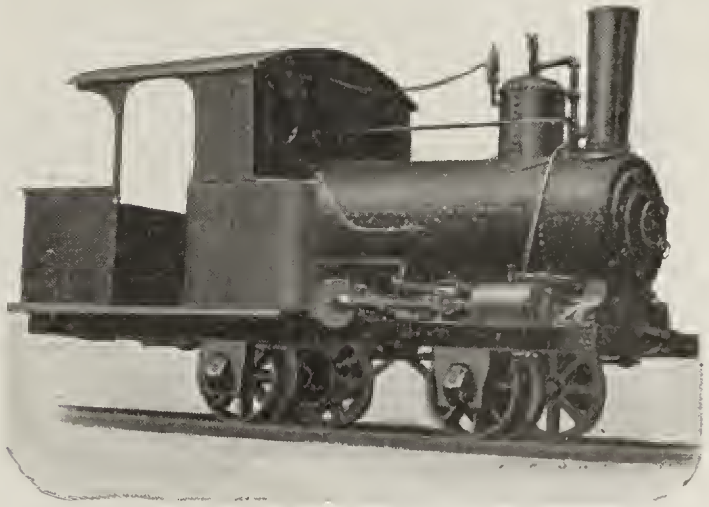

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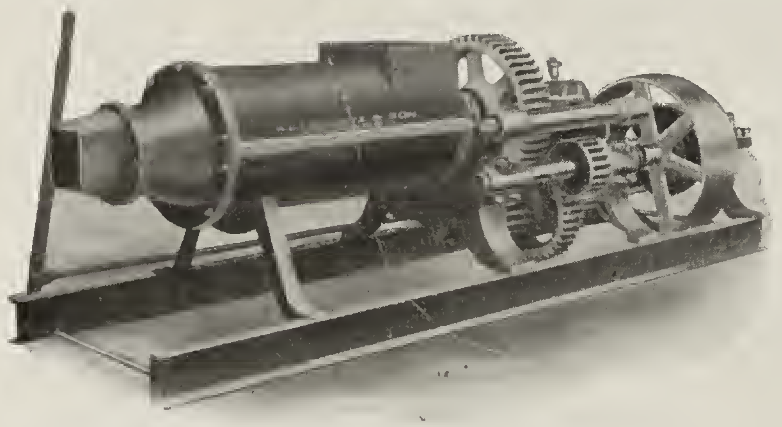

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may start up in April, and their output is an uncertain factor. The impression is that any advance in prices which would encourage many of these plants to start up would result as in the past in flooding the market, with the usual surplus and unprofitable prices at the end of the year.

Several of the plants that are being dismantled are putting their old machinery on the market, and it is understood that a good many outfits could be had at bargain prices, the demand being limited.

Fred W. Eastman, in charge of the selling agency for the Denison hollow block for all territory west of Denver, has been in San Francisco establishing an office for the California Denison Block Company, taking quarters at 401 Monadnock building. H. R. Kreitzer, who has been associated with Mr. Eastman in the sale of this material at Portland, Ore., and Tacoma, Wash., will have charge of the local district, though the San Francisco office will hereafter be the main headquarters for the whole Western territory. The company will be ready to make deliveries about the end of the month, and Mr. Eastman, on his return from a trip to Chicago and the New Orleans convention, will establish an office at Los Angeles, which he expects to have open about May 1. The blocks are now being made for the interior of California by the Sacramento Clay Products Company, and, as formerly mentioned, the Carquinez Brick & Tile Company will manufacture for the San Francisco market.

The Port Costa Brick Works, which has been air-drying its brick, ran out of green brick last month during the storm, and had to shut down the kilns, but will probably start again in the near future.

Howard Frost, president of the Los Angeles Pressed Brick Company, and Gust Larsen, the general superintendent, have gone East to look over some of the late improvements in plant arrangement and brick machinery, and expect to place orders for some new equipment before returning.

W. W. Dennis, of the McNear Brick Agency, says that concern has already booked contracts for eleven million brick for delivery this year, and will without doubt dispose of its entire output, besides the surplus left from last year, as there is a large amount of business definitely in prospect. As for the general outlook, he says it is impossible to tell for a couple of months how many plants are going to ship to this market, making the future a little uncertain. He has not commenced to make deliveries on the large contracts, and looks for no great rush until about the first of May.

The Pratt Building Material Company has the contract for partition tile for a new San Francisco school at 22nd and Church streets, and is furnishing common and pressed brick for a business block at Hughson, Cal.

Gladding, McBean & Co. have taken the contract for terra cotta for the Hobart building, one of the largest office structures to be built in San Francisco this year.

The San Luis Brick Company, San Luis, Cal., is getting under way for the season, after the usual winter shutdown for repairs, etc., and brick is again being shipped into the Santa Maria oil field district, where there is considerable demand. Several improvements have been put in, consisting mainly of improved screens and conveyors for the dry clay.

LOUISVILLE, KY.

By G. D. CRAIN, JR.

Special Staff Correspondent.

While there is comparatively little going on at present in this vicinity, prospects are such that the trade is feeling very much encouraged. This is especially true of the local handlers of high-grade face-brick, made by out-of-town concerns, several of whom have nice orders on their books for delivery later in the Spring. Some of the manufacturers around Louisville who contemplated reopening February 1, have found it inadvisable to do so, on account of the severe weather, the coldest of the Winter, which has prevailed for the past few days. On the whole, however, the situation is much more favorable than was expected a month ago.

Other clay products, especially sewer pipe, are also in a strong position, the amount of sewer work proposed and under way around the city being largely responsible for the demand for the latter item. Out in the State indications are that there will be plenty of sewer building later on, when the weather becomes more moderate, and the makers of sewer pipe are therefore looking forward to an active season.

The Union Cement & Lime Company, of Louisville, which has heretofore handled only the lines indicated by its name, has taken on a full line of building materials, and placed in charge as salesmanager L. M. Parsons, who was formerly with Owen Tyler. Mr. Parsons will have an office and show-room in the Starks building, where the face-brick and hollow tile manufactured by the Western Brick Company, of Danville, Ill., besides other products, will be exhibited.

J. H. Bell, salesmanager of the Louisville Fire Brick Company, reports that the demand for common brick is somewhat dull locally, and that the Louisville plant is therefore not running to full capacity. The company received an order at its Grahn, Ky., plant, however, for 1,250,000 brick from a large manufacturing concern which will erect a new plant during the Spring, and this will keep things moving until other large orders are plentiful.

The Kentucky Vitrified Brick Company's plant is not running full time at present, as the immediate demand is somewhat slack, with very little work in sight, aside from a single big order which the company landed recently, for 500,000 to 600,000 hollow brick and several tons of fireproofing for the Seelbach Hotel annex, which will be built during the coming Summer.

W. T. Watkins & Co., of Louisville, with offices in the Realty building, who handle a line of clayproducts for buildings, including brick and tile, reports that business is rather quiet at present, although there are several good deals in sight, with prospects for the Spring, on the whole exceedingly good.

Owen Tyler recently landed the order for the face-brick for the Balnap garage on the river road. Mr. Tyler will also furnish 15,000 pounds of red Pecqra mortar stain for use on the Seelbach annex, and the raggle block and coping used on that building.

The Louisville Builders' Supply Company has taken on the sewer pipe line of the Cannelton Sewer Pipe Company, Cannelton, Ind., and will try to get its share of the sewer work going on in this part of the country. The company will furnish 200,000 red face-brick, manufactured by the Patoka Brick & Tile Co., of Huntingburg, Ind., for the Seelbach annex. An order for 15,000 of the same brick was also received recently for a West End bungalow being built by A. T. Townsley. Secretary James Obear looks for business to be exceptionally good this Spring, and is preparing for it accordingly, accumulating stocks of the goods carried in order to be able to fill any order promptly.

The Coral Ridge Clay Products Company has found the work of building new kilns has been hampered by the recently cold weather, which has also had a depressing effect on business. A lot of 75,000 brick from this company, however, will go into the new plant of the Grocers' Biscuit Company, a Louisville concern, and other good orders are in sight, according to Superintendent George H. Fielder.

The R. B. Tyler Company will shortly install a new display case for its lines of face brick, twenty feet long by ten feet high, in connection with a rearrangement of the display room devoted to the building materials handled by the company.

The Louisville Brick Company opened its plant for a day or so last week, and ran one kiln, but found it necessary to close down again on account of the weather. Manager Joe Nevin has about 600,000 brick on hand, but with several big jobs in prospect is anxious to begin operations again.

Prospects for manufacturers of paving brick in this section assumed a fairly rosy hue when it was announced recently that five miles of streets will be improved in Louisville during this year, at a cost of about $250,000. Not all of this work will involve the use of brick, but a large part of it will, and this means that a considerable proportion of the amount indicated will accrue to the men who furnish the brick.

Sewer work to the amount of $25,000 in the town of Oakdale, Ky., adjoining Louisville, has been temporarily halted by an injunction procured by a resident of the town.

A bill has been drafted by the Louisville Board of Public Works, and will be introduced in the legislature, making it compulsory for property-owners to install water and sewer connections before a street is built, the object being to prevent streets being torn up after being laid in order for these connections to be made; and incidentally, sewer connections will be more general by reason of such a requirement.

Will P. Blair, secretary of the National Brick Paving Association, delivered two lectures recently before the men who are attending the short course on Highway Engineering at the State University at Lexington, as a part of the course, his subjects being "Brick Pavements" and "The Construction of Brick Roads." These addresses were especially valuable by reason of the fact that the greater part of the course deals with macadam roads, which are in general use in the State.

The P. Bannon Pipe Company, of Louisville, will furnish the vitrified tile for the sewer job recently landed by F. Larson, of Louisville, on a bid of about $31,000. About 6,000 feet of sewer will be built, on West Chestnut street, but a part of this will be of concrete. The company will also furnish a large quantity of tile for the drainage of Evergreen Cemetery, near Louisville, ranging from 15 to 30 inches.

L. M. Parsons, for several years advertising man and salesman for Owen Tyler, left the Tyler organization January 1, and may return to the lumber business, in which he was engaged up to 1908 with his brother, J. L. Parsons, who is with Owen Tyler now.

Donald McDonald, sales manager for the R. B. Tyler Company, which handles brick and other building materials, was married recently to Miss Juliet Avery, of Louisville, and the couple are spending their honeymoon at Ft. Myers, Fla. During Mr. McDonald's absence his assistant, Howard Frazier, is handling his work. R. B. Tyler, president of the company, stated that 1913 would have been a very good year with the company except for the two fire losses suffered, the rock-crushing plant and the company's stables having burned during the later part of the year. The company also suffered losses on some of its contracts to furnish crushed rock to the contractors on the county roads, due to squabbles with the county authorities and resulting litigation.

PHILADELPHIA, PA.

BY E. J. BROWN.

Special Staff Correspondent.

The weather has put a stop to all building operations, except those that were enclosed during the milder days that followed the holidays, but plans are on foot among Quaker City builders to carry on a fairly good program this year. Many of the brick plants are working right through the Winter, in anticipation of a busy Spring, and every indication points to a satisfactory first-quarter's business.

Collections, however, are slow, and none of the dealers are stocking up. The orders that are usually placed at this time of year for sewer-pipe, drain tile and stock brick are almost totally absent, the demand being a dribble, reflecting the desire to fill out broken lines only, and wait for further, unmistakable signs of returning prosperity, before incurring any indebtedness.

Outside of the building brick and paving brick industry, the same feeling seems to prevail, manufacturers making only what they are sure they can sell quickly. There seems to be a

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BY INSTALLING THE
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READ THIS LETTER CAREFULLY

Mr. Paul Beer, Des Moines, Iowa, Oct. 15, 1913.
Des Moines, Iowa.
Dear Sir:—
We desire to call your attention to the following comparisons in our kiln records covering a period of eight months, from February 1st to September 30th, this year.
The February and March burns were made on the horizontal grate. The April burns were about equally divided between the horizontal grate and the GRATELESS GRAVITY FEED FIREBOX. The burns for the five succeeding months were made on the GRATELESS GRAVITY FEED FIREBOX.
On the horizontal grate the average amount of fuel burned per kiln equals 86.6 tons and the average burning time 11 days, 8.7 hrs. On the GRATELESS GRAVITY FEED FIREBOX the average fuel burned per kiln equals 63.6 tons and the average burning time 9 days, 14.3 hrs. Thus, you see, there is a saving in fuel of exactly 23 tons per kiln, which amounts to $57.50 per kiln per burn. This represents a saving in fuel for the five months that the GRATELESS GRAVITY FEED FIREBOX has been in use, of $4,657.50, which would be an average saving of $931.50 per month, or $11,178.00 per year if the plant were to run all year at capacity.
Very truly yours,
THE BARBER ASPHALT PAVING COMPANY.
By John F. Field, Superintendent.

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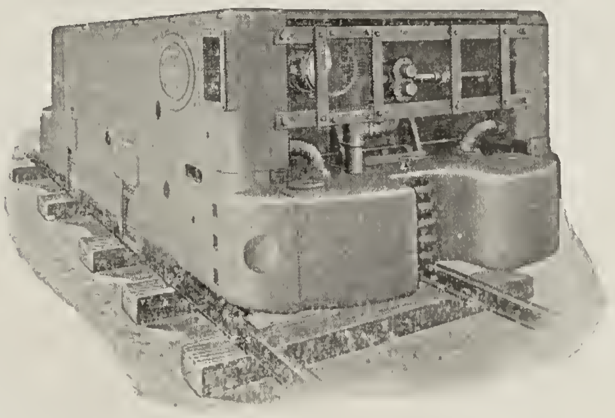

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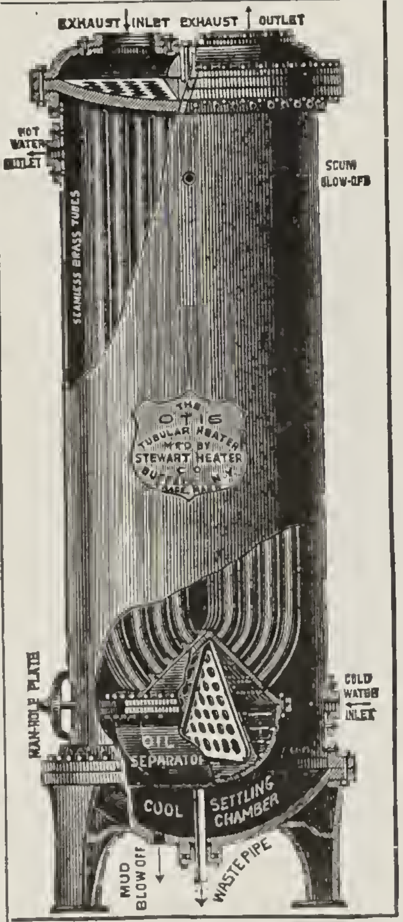

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To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust,* so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator.*

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lack of confidence all around, and the vim and push that one would like to see, is missing. Everyone is "waiting"—no one seems to know what for—yet everyone waits.

Philadelphia clayworkers are preparing their exhibits for the Panama Exposition and it is thought that there will be enough, in the way of burned clay and clayworking machinery, to make a complete shipment. If this be the case, it will be made ready in time to ship around the Horn. One shipload of exhibits has already gone that way, being loaded out of Toronto, Canada.

Experts in building statistics are pointing to the fact that the first month of the new year fell decidedly below the total for January, 1913. The report of the Bureau of Building Inspection for last month shows 865 operations to cost $1.247,985, while the records for 1913 indicate that 788 operations costing $1,456,740 were undertaken in January of this year, as a matter of fact the records show that only three times in the last decade has the total expenditure for January building been less than that for last month.

Despite the decrease in general building that is shown, dwellings, as was predicted by contractors and builders the first of the year, show an increase, for 283 operations to cost $522,850 were begun last month, compared with 133 operations costing $495,700 in January, 1913. The principal activity within city limits last week was the sale of land located in Germantown belonging to the Carpenter Estate located at Lincoln avenue and Hortter street. The purchaser, W. S. Bauer, who is a prominent builder, intends erecting a number of very handsome buildings in pairs. These buildings range in cost from $10,000 to $20,000 each. The cost of the ground is said to be $50,000.

There will be another operation of 48 dwellings erected at Logan, costing $125,000.

WASHINGTON, D. C.

BY HARRY SHERMAN.

Special Staff Correspondent.

The fact that only $8,396,701 represents the estimated value of new building plans filed during 1913, as against $21,768,483 in 1912—a loss of approximately 61 per cent, has given a tone of pessimism to the clay products industry in and near the Capitol city that will be very hard to erase.

A falling off in demand, such as this great slump in building would naturally cause, has resulted in poor prices and big stocks. While the obvious cure for this condition is to curtail production until the demand had caught up to the supply, it is a case of the cure being as bad as the disease, for an idle plant, or a plant running on anything but full schedule, loses money every day.

Some hope is held out that the recent changes in the slums of Washington, whereby the old, ramshackle buildings are to be effaced, and a parkway substituted, will cause the erection of a number of houses to shelter the families that were evicted by the City Beautiful idea of the Administration ladies. Sober thought, however, brings to mind that the denizens of the old quarter are not apt to move into new apartments, but will be much more apt to drift to some other part of the city, where tumble down houses offer the greatest floor space for the least rental.

KANSAS CITY, MO.

BY MURRAY E. CRAIN.

Special Staff Correspondent.

Unfavorable weather conditions in Kansas City have prevented much work on projects which have been in hand for some time. While the weather has not been consistently bad, it has been wintry enough at times to indicate that the back of Winter has not yet been broken. A tremendous volume of building is for this reason being held back, pending the arrival of Spring. In the meanwhile, most of the Kansas City brick manufacturers are working steadily in anticipation of a strong trade a little later. A good many jobs are being completed, keeping brick makers from accumulating top-heavy stocks.

The Buffalo, (Kas.) Brick Company, has transferred its sales offices to Kansas City, under the management of R. E. Jackson. Mr. Jackson has opened offices at 1121 Commerce Building. He will devote his efforts largely to the paving-brick end of the business. This concern manufactures about a million and a half of pavers and about a million building brick monthly. The company's policy regarding building brick will be to continue to distribute through Kansas City dealers as far as possible. Its own local branch will, as indicated, specialize on pavers to a great extent. The company is one of the leading members of the Western Paving Brick Manufacturers' Association.

Kansas City seems likely to provide a good-sized delegation for the New Orleans convention. Robert Nesch, of the Pittsburg, Kan., Paving Brick Company, and president of the Western Paving Brick Manufacturers' Association, will represent that organization at the convention. Secretary George W. Thurston also may attend. In the fire brick and tile trade, G. H. Tefft, of the W. S. Dickey Clay Manufacturing Company, will probably attend the meeting. A. J. Hazelton, local manager of the Hydraulic-Press Brick Company, is contemplating the same action, while several others are arranging their plans with a view of mingling with the brick men in New Orleans on March 2.

Recent contracts swung by the Western Paving Brick Manufacturers' Association, according to an announcement by Secretary G. W. Thurstor include one for 25,000 yards of three-inch vertical fibre at Corsicana, Tex.; 30,000 yards of three-inch fibre at Houston, Tex.; 7,000 yards at Fort Worth, Tex., and 32,000 yards of No. 1 blocks at Winfield, Kan. All of these contracts were handled within ten days, being merely a few of those secured by the Western association, which has been extremely active.

E. R. Hoerr, for the past year at headquarters of the Kansas Buff Brick & Manufacturing Company at Buffton, Kan., has been transferred to Springfield, Mo., as manager of a new branch established there. Mr. Hoerr has opened offices at 525 Woodruff building. This change followed that by which A. G. Bodwell was placed in charge of the Kansas City sales offices of the company in place of F. C. Lafountain, who was returned to headquarters. The company now has this section well covered, maintaining sales offices at Kansas City, Mo., Wichita, Kas., Springfield, Mo., and Oklahoma City, Okla., besides distributing at less important stations through dealers.

The Muehlebach Hotel, which will shortly be erected at Twelfth street and Baltimore avenue, will be a face brick proposition exclusively. The hostelry, to be one of the finest in the Southwest, will be twelve stories in height, and will cost about $2,000,000. Bidding on the material will be spirited, the contract being one of the largest ones to be awarded during the coming year.

The brick plant of Flanagan Brothers, closed down several months ago, will shortly resume operations. Stocks on hand are extremely light, having been consumed by a number of jobs on which deliveries have been made throughout the Winter. The manufacture of common brick will be resumed as soon as the weather opens up.

The W. S. Dickey Clay Manufacturing Company and the Humboldt (Kas.) Brick Company were the only representatives of the clay industry to exhibit at the Southwestern Lumbermen's convention in Kansas City recently. The Humboldt Brick Company displayed common brick and hollow tile, while the Dickey Clay Manufacturing Company exhibited all of the numerous lines made and handled by it. The Dickey exhibit was easily the most striking of all those seen at the convention, a fact the more gratifying to the brick and clay trade, in view of the numerous concrete products which were shown The Dickey Clay Company, by way of emphasizing its display, advertised extensively in the daily papers during the Lumbermen's meeting. The publicity work was as effective as was the display. One of the ads., emphasizing the merits of Dickey fire clay flue lining, attracted wide attention, paraphrasing, as it did, the slogan of a national soap advertiser. "Have you a little fire trap in your home?"

Mrs. Lucy Timmons, who recently won as defendant in a case in which the Hydraulic-Press Brick Company was the plaintiff, must retry the suit. Mrs. Timmons acted as her own attorney during the trial, and her "torrential narrative," as the court referred to it, combined with the fact that she did not follow the rules of evidence closely enough, form the reasons for the recent decision in the Appellate Court. The Hydraulic Company attempted to establish a mechanic's lien against a flat Mrs. Timmons built.

Bids will be opened by the City of Topeka, Kan., on February 26, for paving contracts to be awarded shortly after that time. Forty-six blocks of streets are to be paved in Topeka, besides seven blocks of alleys. Both vitrified brick and asphalt will be used. The cost of the work will be about $100,000.

With the growth of floriculture at Kansas City, Mo., and surrounding sections, the smooth, porous flower-pots made by the Missouri Pottery Company not only filled the requirements of the local market, but received some free advertising that has carried their wares to distant points. The consequence is that this company is enjoying a fine shipping trade.

BALTIMORE, MD.

BY HARRY SHERMAN.

Special Staff Correspondent.

The building brick manuacturers of Baltimore look forward to a good year, as there is very little surplus stock and there has been an increase in the cost of manufacture. This, together with a short labor supply and consequent higher wages, has resulted in a shortened output and a firmer price. It is said that this will cause a larger proportion of soft-burned brick to be used, which is a good thing for the manufacturers, as it gives them an outlet, at a good price, for material that would be waste, were it not given a place in Baltimore's building projects. This soft brick is used in the smaller houses, where, it is claimed, it serves the purpose as well as the harder burned brick, and sells for $1.00 less. Another outlet is through the increased use of "sorted commons" for face-brick purposes.

DETROIT, MICH.

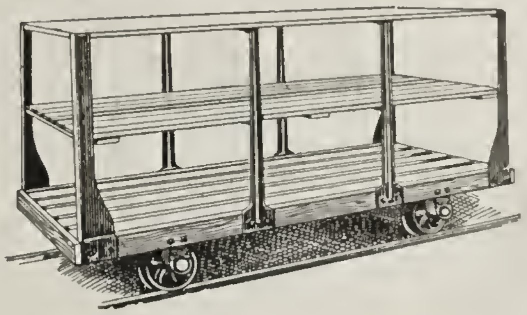
BY JACOB SMITH.

Special Staff Correspondent.

There is practically nothing new or startling in the brick business in Detroit. Some of the large manufacturers are just about holding their own, while others are shut down, making repairs and extending their equipment, in anticipation of a brisk Spring trade. New construction work is none too active at present, but the outlook is bright, architects saying that they look for a season that will be at least as good as 1913. When it is recalled that the valuation of new buildings planned in 1913 was more than $5,000,000 greater than the preceding year (an increase of nearly 20 per cent) it will be seen that this optimism on the part of Detroit's architects is very satisfactory to the manufacturer of burned clay.

The tenth annual meeting of the Detroit Brick Sales Company was held during the early part of this month, and the

Manufacturers of the famous
Vulcan Dryer Cars
Over 4000 in use in Mason City



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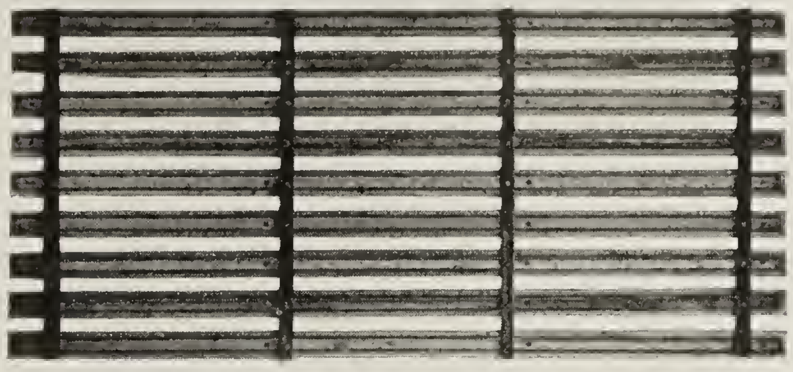

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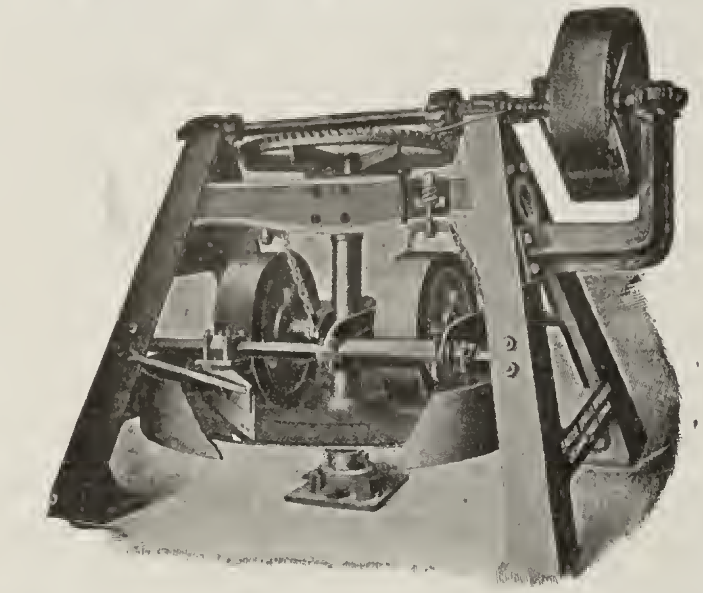

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DESCRIPTIVE CATALOGUE ON REQUEST

EAGLE IRON WORKS, Builders

DES MOINES, IOWA

N. B. M. A.

Delegates to New Orleans Convention are invited to join a party leaving New York for New Orleans on Friday, Feb. 27, arriving New Orleans, Sunday morning via New York and New Orleans Short Line.

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1245 Broadway, New York

following officers were elected; Paul B. Belden, president; H. R. Beegle, vice-president; G. S. Totten, secretary and sales manager; George Nunn, treasurer and general manager.

An attempt is being made by the Michigan Federation of Labor to bring about an eight hour law. Circulars have been sent to labor unions in all parts of the state, urging their co-operation and influence in bringing this about. At the next session of the State Legislature, a strong effort will be made to have the eight hour principal incorporated into a bill, behind which the allied labor interests of the state will be found.

The sudden death of Frederick W. Thomas, of the Thomas Brothers Company, brick dealers, of this city, will come as a shock to many prominent manufacturers of face and paving brick. Born in Halifax, Yorkshire, Eng., in 1861, Frederick W. Thomas came to this country in 1884, and, with his brother, purchased a horse ranch in Colorado. After six years in the West, he came to Detroit and opened a manufacturers' agency, the best known, in all probability, in the Middle West. He is survived by a widow and one daughter, a brother and a sister.

At the annual meeting of the George H. Clippert & Bro. Brick Company, Detroit, the following officers were elected for the coming year; George H. Clippert, president and treasurer; Charles F. Clippert, vice-president and general manager; Harry F. Clippert, secretary. The reports of the officers were read and showed the company to be in excellent financial condition. During 1913 a total of 55,000,000 brick were delivered. "Our new plant, known as No. 3, is one of the most modern and successful in the country," said George F. Clippert, "and with our three plants in full operation, we will confidently expect to turn out over 75,000,000 brick during 1914."

The Queen City Brick Machine Company of Traverse City, Mich., has changed its name to the Helm Brick Machine Company.

Fred L. Twining, of Bay City, Mich., is a recent addition to the sales force of the Michigan Vitrified Brick Company of that city.

The Lonyo Brick Company of Detroit has changed its name to the Mercier-Bryan-Larkins Brick Company, and increased its capitalization from $30,000 to $60,000. The company has purchased property on Miller road and the Michigan Central railroad and will erect a modern brick plant there. The price paid for this property was in the neighborhood of $75,000. It is contemplated that the new plant will make common brick with a capacity for about 150,000 brick per day and will cost approximately $100,000. The owners expect it to be operating by the first of July. The principal stockholders are John A. Mercier, Charles H. Bryan and Joseph Larkins.

C. P. Steinheiser, the leading Detroit manufacturer of sewer crocks, has been elected on the directorate of the United Fuel & Supply Company, a merger of the C. H. Little Company and the Malcomson-Houghton company, dealers in builders' supplies. The new organization will be one of the largest concerns of its kind in the middle west.

CHICAGO.

BY WARFIELD WEBB.

Special Staff Correspondent.

Winter has at last gripped us and has effectually tied up all building operations that were not enclosed when the cold snap came in. The tendency had been to undertake outdoor work and the clay men were beginning to hope and believe there would be no more severe weather. This belief shaped itself so that much early work was planned, when the mercury dropped to and below the zero mark and all talk of an open Winter ceased.

Everyone talks of a good time coming. The year just passed was a good one, in point of value of projected buildings, holding its own with 1912. Nearly Ninety Million Dollars shows on the year's record, a gain of two per cent over the previous twelfthmonth. The present year has started so well that it is not beyond the bounds of reason to believe a round Hundred Millions will show, when the records for 1914 are closed. Money is easier. Loans are possible at a lower rate, and the banks are willing to lend money. These are the signs upon which the clay men are basing their faith that the brick and other clay constructional lines will be in good demand all year.

This is one phase of the industry. Another pertains to the use of brick for streets and highways. In the past few years there has been a material increase in the activity of several commodities to gain a place in the construction of Chicago's streets. The recent organization of a Paving Brick Publicity Bureau, to promote the adoption of brick for street work has brought into prominence the many desirable qualities of brick for paving purposes. The number of streets that are now being paved and that are to be paved during the coming Spring and Summer with brick shows a very material increase over that of the past several years. This has only been made possible by hard work, and by convincing facts that have awakened in the minds of the people a desire to get the best for the least money.

One hears, now and then, a little complaining rumble about the low prices on face-brick asked and received here. It would appear to an outsider that there is no real reason for this condition. The matter of competition, of course, is the real cause for this condition, and still, with the demand for face-brick continually increasing, the reason for the lowering of the prices is not apparent. It would appear that a standard of prices that would net a decent profit on every sale, might be maintained and still leave enough competition to make it interesting. In the present situation, no one gains but the man who builds and he is being educated to a ruinously low price on certain grades of brick—prices that he will continue to demand, long after the present slump is back to a normal level.

In other lines, sewer-pipe, drain tile, conduit, terra cotta, and general clay lines, there is a very fair demand. The outlook is decidedly better, and there is nothing so far as can be ascertained now that will mar the expected increase in the number of orders that will make this one of the big years in clay commodities.

ST. LOUIS.

BY JOHN S. FREY.

Special Staff Correspondent.

The building and general prospects for the brick and clay trade have improved in a marked degree of late, although it is true that some brickmakers are unable to see the change, because they have not realized a substantial change for the better in their own business. It takes time for a change to come about but the favorable prospects are reflected ahead and conditions are improving in general business. The majority of the plants in this locality are still down for repairs and as most of the yards are well supplied with brick, waiting for the demand, there is no hurry to have them resume early operations. The large supply of building brick on hand now is due to the lack of demand last year, as the plants operated pretty steadily during the year of 1913, due to the fact that the weather had been everything that the brick manufacturer could desire.

The demand the past month has been good and a great deal more active than this time last year. Usually at this time of the year when the weather gets cold, there is a falling off in the brick business, but this year is an exception, the weather being so pleasant that building operations have been going right ahead. The general situation in business, as reported by men who know, is all of an encouraging nature, and some shrewd forecasters believe that the brick manufacturers will find that they will be short on the demand for brick when the building season opens in earnest.

There is a general tendency to further public improvements such as school houses, and other public buildings, while sewer construction, paving and other similar work is quoted in line. The brick manufacturers are beginning to look over their plants and lay plans for the new season, and despite the past poor season, a number of plants have work under way for the installation of new machinery.

The recent elections held by the various clay product companies have in no way affected the officers for the current year.

INDIANAPOLIS, IND.

BY H. R. JENNE.

Special Staff Correspondent.

Another plant has opened for the season and is running to capacity, two new buildings have been started in Indianapolis, and the season's business seems to have made a running start. The prospects for many private as well as public contracts at this time is bright.

The first public contract of the new city administration, that for 2,000 feet of sewer pipe for an interceptor sewer, will have been let by the time this reaches print. Considerable work of the same nature is being planned. Bids are being asked on a number of street and alley paving contracts, and while brick men have not been able in the past to get a fair share of this ırk, there is some indication of an awakening that is sure to have some result.

The Veedersburg Brick Company ,at Veedersburg, Ind., has started production, and expect to keep going to capacity to the season's end. They are running on common and face brick. Dr. J. H. Pritchard, who is running the Veedersburg Brick Company, is optimistic. He believes the year will be the best the company has had, but does not look for its full force to be felt before April.

The home building concerns are actively planning for the coming year, and architects who handle residence work, say the outlook is exceptionally bright for a great quantity of high grade work the coming year. On the whole it is the private work in sight and reasonably to be expected that is most responsible for the optimistic outlook. There is some talk of the shortage, particularly among the companies whose plans will not permit of starting production before March 15 or April 1.

The Acme Brick Company, at Cayuga, Ind., is to start up after a short shut-down for repairs.

The Lawhead Brick & Tile Works, Loogootee, Ind., is making a steady run on drain tile for which there seems to be an unexpected demand, due no doubt to the mild weather. The company has started construction of a new kiln of 65,000 capacity and before the season is on in full strength they expect to be running steady on brick. Last year's production was 2,000,000. They expect to double it in 1914.

The Clay Products Company, Brazil, Ind., claims to be the manufacturer of twenty-seven per cent of the clay conduits made in United States.

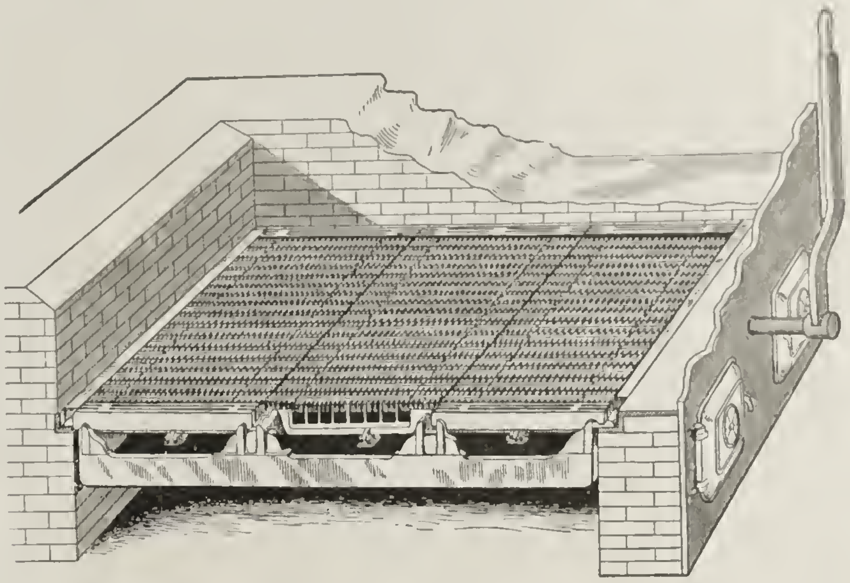
The United States Encaustic Tile Works, of Indianapolis, Ind., is preparing an additional line of matt glazes and specially modeled effects for mantels and interior decorations as well as similar lines for exterior work. As a member of the firm said, the new patterns are of such beauty and effect that mere words fail.

TORONTO, ONT.

BY HARRY SHERMAN.

Special Staff Correspondent.

Burned clay is rapidly coming into its own in this, one of the most progressive of Canada's municipalities. It is claimed that practically half of the brick production of the Dominion



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Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

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Paving Brick Grout

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11 Mills—Annual Capacity Over 12,000,000 Barrels

LEHIGH PORTLAND CEMENT COMPANY
LEHIGH PORTLAND CEMENT
CAPACITY OVER 2,000,000 BBLS YEARLY
ALLENTOWN, PA AND CHICAGO, ILL.

is in the Toronto district, where there are some 300 firms, some of them ranking among the largest in America, making brick, tile and terra cotta. The feeling that Canada had no good brickmaking clay has subsided, and impervious face brick is being produced that rivals the best makes in the States. There is, however, a big field for paving brick makers, and this is an industry that Canadian brickmakers are beginning to develop.

The time has come for better roadways throughout the Dominion and so far British Columbia seems to be in the lead. Farmers living within fifteen miles of Toronto must leave their homes at one o'clock in the morning in order to reach the markets by seven a. m.

The Ontario National Brick Co., of Montreal, have secured an order for several million brick for the city of Toronto. They are for sewer construction.

One of the best plants here is that of the Sun Brick Co., which is making common wire cut building brick, gray face or stock brick and red and purple stock. The demand was good for the year of 1913, the output is always sold and no accumulation. Regular prices are being kept up and are as high as $10.75 for red face and $9 for common wire cut, the latter a soft brick of red or gray color. Concrete drives have been built all around the plant, all switches depressed and lined with brick. A new machine shop and garage have been put up and seven motor trucks bought for delivery purposes. The plant is at Don Valley, four miles out of the city. There is a good shale bank, the overburden of which runs from one to three feet, good for tile and the clay makes good red, gray or buff brick. The shale goes down very deep, as far as 2,000 feet or more, but can not be worked lower than 75 feet, as it gets so very hard. One hundred and thirty-five acres of clay land are included in the property. Eighteen kilns are built and four more down-draft kilns will be built in the near future. The brick is burned to a heat of 1,800 degrees. Ten tunnel radiation dryers are installed and ten more are being put in. This was on old plant which has been rebuilt. Niagara Falls power is used for the machinery and for burning the brick a Younger continuous producer gas kiln, which makes gas from the coal as used. It is a most economical method and takes two men every twelve hours to handle the burning of 70,000 brick, while under the old system, when coal and wood were burned, it would take four to six men every twelve hours. A Raymond C. W. R. hollow ware machine, which will make either tile or brick and a new Raymond Mobile No. 4 cutter for face brick, is a part of the machine equipment and a coal hopper to dump coal from the cars, which will be carried by a conveyer, to the boiler house, is one of the labor saving devices, that will save a great deal of time and money in handling the material. Eventually the entire plant will be rebuilt and the best machinery and up-to-date methods will be adopted. Mixtures are made now to make the brick any color, stiff or soft mud. Denison interlocking tile and hollow fireproofing are also made at this plant, as well as rough faced face-brick. The output of common brick now is 60,0000 a day and 40,000 rough faced brick as well as 80 tons of tile. The rough faced brick brings from $20 to $30 per 1,000. This firm has only been in business a year, but has revolutionized the plant by adopting the higher efficiency and economical methods. G. A. German is the general manager and A. F. Greaves Walker who was with the Southern Clay Mfg. Co., of Coaldale, Ala., is the practical man and factory manager. He is a member of the Ceramic societies of the United States, England and Germany, is a Fellow of the Utah Academy of Science and a graduate of the Ohio State University.

The Elk Fire Brick Company of Canada, Ltd., manufacture a good fire brick at Hamilton.

The Standard Clay Products have two sewer pipe plants at St. Johns, Que., and New Glasgow, N. S., and a fire clay factory at the first named place. They make a high grade salt glazed vitrified sewer pipe, flue linings, fire brick and all kinds of vitrified and fire clay goods and hollow building blocks.

S. W. Black, general manager of the Black Building Supply Co., of Toronto, has gone on a six months' trip to Europe, and during his absence N. W. Drummond, the secretary-treasurer, is in charge.

R. B. Smith has been appointed secretary-treasurer of the Stinson-Reeb Builders' Supply Co., of Montreal.

The Russell (Ont.) Shale Brick Works make a hard, durable, shale brick, which burns to a rich, deep, red tone. They have a capacity of 125,000 brick a day.

The Don Valley Brick Works have a large contract for brick for the new Royal Bank building and the porous terra cotta fireproofing contract is the largest ever let for a single building in the British Empire.

The Frontenac Floor & Wall Tile Co., of Kingston, Ont., have a new and complete plant for the manufacture of wall, floor and decorative tile, which demand is increasing as, up to this time, the great bulk of this material has been imported.

The W. K. Macdonald Co. of the Crown office building, Toronto, are handling building materials and may later handle clay products.

The Sydney Pressed Brick Co., of Sydney, N. S., is the only plant in Canada, making pressed brick from blast furnace slag, which brick is said to be as hard as flint, adheres with great strength to mortar and hardens with age.

The York Sandstone Brick Co., of 123 Bay street, make a very good sand-lime brick, uniform in color, size and quality, free from bats and culls and has a crushing test of 3,030 pounds per square inch. The capacity of the plant is 40,000 a day.

The Schultz Bros. Co. of Brantford, Ont., has a good plant making silica pressed brick, having a capacity of 6,000,000 a year. They are said to be strong, sanitary, non conductors, and hard as a rock, good for facing, interiors, backing, sewers, and even for fire brick purposes.

The Ontario National Brick Co., of the Toronto Office Bldg., have built a new plant with 300,000 a day capacity, at Cooksville, Ont. The headquarters for this concern are at Montreal.

Freight Tariffs

With this issue, "Brick & Clay Record" begins a series of articles on the Interstate Commerce Law, as it affects the shipper and the railroad. Particular attention is called to these articles, and their careful perusal is urged, since few shippers realize that the Interstate Commerce Law is double edged and, while equality is its aim, it is dual in its requirements. It carries a responsibility to the shipper and provides penalties in the way of fines and imprisonments that every shipper is liable to incur, if he be guilty of the slightest infraction of a law with which, in most cases, he is very unfamiliar.

By Sydney A. Hale.

THE prosperity of the United States, as of no other country, is dependent upon its transportation facilities. The network of tracks extending from coast to coast are the arteries through which flows the life-blood of commerce. Business moves and has its being in this interlacement of steel, approximating a quarter of a million miles. Unless these avenues are kept open, unless traffic can move freely along these rails, community isolation and industrial disintegration would be inevitable—and swift.

With this power of financial life and death concentrated in the control of one agency, it was only natural that arrogance should creep in. Pampered, fondled by aspiring communities, dowered with land grants and cash bonuses—which they returned in increased values to the country through which they ran—the railways forgot, for a time, that, while in their strength they might crush, they would, like Samson, eventually be buried under the commercial havoc they wrought.

When the public discovered that these steel angels could also be Frankensteins, it rebelled, and demanded regulation. Individual states were the first to respond with statutory curtailment of the railroad's license, but local regulation proved inadequate to effectually curb. The national government, acting under the powers of the commerce clause of the Constitution, stepped in. With the Constitutional grant that Congress shall have power "to regulate commerce with foreign nations and among the several states" as their authority, Senate and Representatives proceeded to make transportation amenable to public will.

The Cullom Act of 1887 was the result; but this soon proved more admonitory than corrective. Amendments were grafted on it in 1889, 1891 and 1895. Still complaints grew apace. In 1906, the act was vitalized by the so-called Hepburn amendments and regulation that regulated, came into existence.

From a helpless, but earnest, body, the Interstate Commerce Commission, charged with the administration of this law, became one of the most powerful agencies in the entire national body politic. To further strengthen it and to correct those omissions that real regulation disclosed, the law was again amended in 1910. Today, though somewhat of a hodge-podge, it is one of the most important laws upon the statute books.

The fundamental purpose of the Act to Regulate Commerce is to secure to all patrons of common carriers that equality of opportunity that is justified by a substantial similarity in circumstances and conditions. At heart, it is nothing more nor less than a restatement of the national right to free and equal chances in the pursuit of life, liberty, happiness—and dollars—which the genius of Jefferson put in imperishable form in the Declaration of Independence. In the development of our commerce, transportation was and is an integral factor. It is essential to give free play to all the forces that go to make up our industrial life, that an agency that all must use should be open to all on an equal basis, circumstances and conditions being given due weight.

Therefore, in general terms, Congress declared that common carriers must provide reasonable facilities for the transportation of persons and property in interstate traffic and establish rates and regulations that should be just, reasonable, non-discriminatory and non-preferential. These are the primaries.

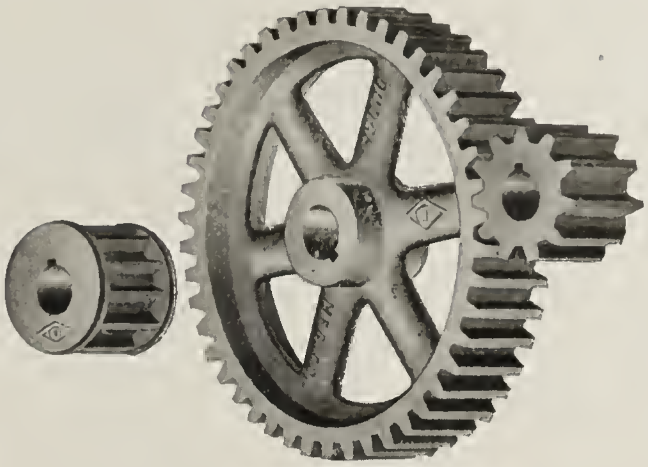
Congress, however, was not content with these general declarations; in its eagerness to strike at special evils that had been complained of, or to enlarge construction where judicial interpretation had narrowed, it went into detail as to those practices which had seemed most glaring in their blocking of equality of opportunity. So we have the long and short haul, the rebate, the defeat of the published rate through misdescription, the free pass, the switch connection, etc., engrafted upon the organic act. But all these multitudinous provisions with respect to carriers are subordinate to the fundamentals before stated.

Primarily, the act is an instrument to regulate the transportation agencies of the country, but, inasmuch as these agencies exist by the traffic the public tenders them, by implication in every instance, and by direct phraseology in several, the shipper is also subject to the provisions of the law. Thus, where the act strikes down an unjust discrimination by the carrier, preferential to some favored industry, it also strikes at the beneficiary of such discrimination. More than that, the vitalizing features of the act as it stands today find their fullest expression in the duties and burdens it places upon the shipper and the public at large, equal to, if not more than the demand it makes of the carriers.

An intelligent understanding of the law must comprehend a full knowledge of its dual requirements. Preliminary to this must be cognizance of what the act controls. In broad terms, this statute applies to all common carriers engaged in interstate transportation of persons and property.

By specific description, the term "common carrier" is made to embrace not only the railroad proper, or the rail and water

DODGE



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Our facilities for gear design and construction represent experience which has brought together the highest type of equipment, engineers and tradesmen. The Dodge list of gears—spur, bevel, miter and mortise—including those bored and key-seated, or set-screwed, has been made as comprehensive as possible.

Our mortise gears are filled with thoroughly seasoned, hard maple cogs, securely dressed so as to assure uniformity and correct pitch of teeth. They are durable and smooth running, and owing to their construction the teeth can be renewed at any time, and at small expense.

Complete information, with prices, may be obtained by writing the factory or our selling representatives mentioned below. If at any time you are in need of gearing, by giving us the following information we can take care of you without delay:

The speeds of the two shafts, power to be transmitted, the maximum and minimum diameter. If spur gears, the distance between shaft centers; the pattern number, pitch diameter, number of teeth, pitch and face; the exact size of bore in inches. State whether or not keys or set-screws or both are desired.

If you do not happen to have our C-12 catalog handy by all means send for it. There are a large number of pages devoted to Dodge dependable gearing.

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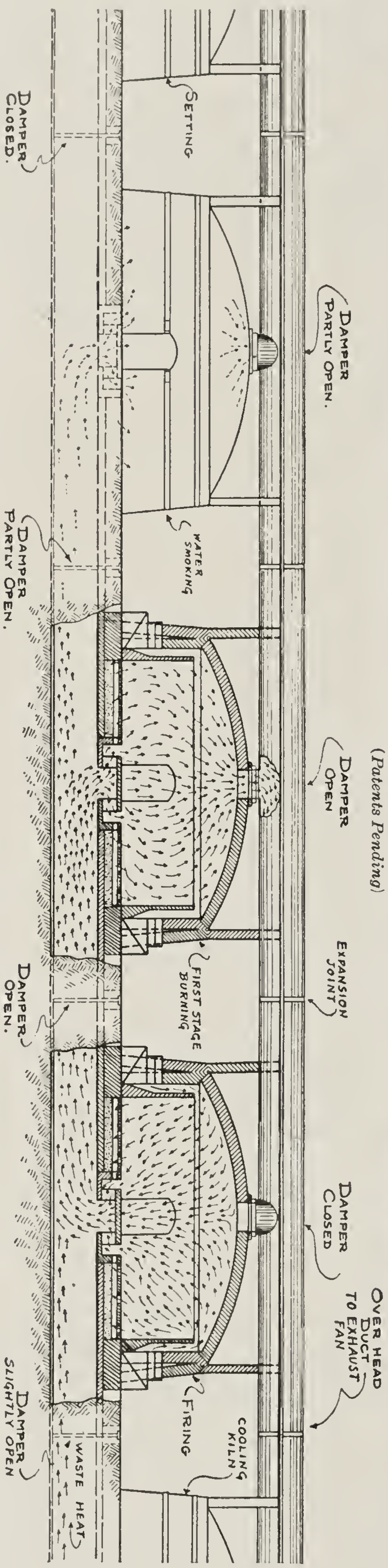
THE SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

(Patents Pending)



The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

lines when land and water facilities are used under a common arrangement for continuous carriage, but pipe-lines, express and sleeping car companies. The amendments of 1910 also make interstate telephone, telegraph and cable companies "common carriers" subject to the jurisdiction of the Interstate Commerce Commission, but they have not been considered in this article. Every commodity, excepting water and natural or artificial gas carried through pipe-lines, comes under its restrictions.

"Railroad" is made inclusive of all bridges and ferries used in connection with any railroad, all the road used by any corporation operating a railroad, all switches, spurs, tracks, terminal facilities, depots, yards and grounds used or necessary in the interstate transportation and delivery of persons and property.

"Transportation" itself covers cars and other vehicles and all instrumentalities and facilities of shipment or carriage, irrespective of ownership, and all services in connection with the receipt, delivery, elevation and transfer in transit, ventilation, refrigeration, icing, storage and handling of property transported.

Discussion of the commerce act has been all so largely with respect to the duties it lays upon the carrier that only a brief recital of what the shipper is entitled to is deemed sufficient here. In the first place, he is entitled to transportation upon reasonable request therefor. The carrier is also bound by law to give him through routes and joint rates applicable thereto. All charges must be just and reasonable. The classifications of freight and the rules and regulations governing rates, classifications and tariffs must be able to meet the same test. The shipper has a right to rates that are not only just and reasonable in and of themselves for the services rendered, but transportation charges that shall not discriminate against any particular traffic, persons or communities where the conditions and circumstances are substantially similar and the service is of a like and contemporaneous kind. The foregoing in itself is an inhibition against preferential rates, but the act also carries the specific prohibition against preferences in practices.

The Act to Regulate Commerce makes it unlawful to charge more for a shorter than for a longer haul over the same line or route in the same general direction, or to charge more as a through rate than the aggregate of the intermediate rates. Further than that, these prohibitions are not an authorization to charge as much for the shorter as for the longer haul. Where a railroad reduces rates to meet water competition, the elimination of that water competition will not be permitted to furnish justification for again raising the railroad's rates. These provisions were storm centers in the legislation of 1910. Originally the injunction against charging more for a shorter than for a longer haul was "under substantially similar circumstances and conditions"; the 1910 amendments eliminated these words, though power is still given the Interstate Commerce Commission to grant departures from these requirements. These amendments also protect, upon application of the carriers, existing adjustments in violation of the long and short haul principle until such time as the Commission might pass upon the commercial justification of such departures.

One of the greatest aids to the shipper and most effective deterrents of discrimination is found in that provision of the law which requires carriers, unless specifically permitted by the Commission to make a change on shorter notice, to post all changes in rates at the stations to and from which they apply not less than thirty days in advance of their effective dates. From its tariff charges no deviation is permitted, either directly or by devices such as false billing, false classification, false weights. Practice of these devices subjects the carrier and its agents to a fine of not more than $5,000.00, or two years' imprisonment, or both; the penalty for rate discrimination is the same. The shipper may demand written rate quotations from the carrier and is entitled to damages arising from a misquotation. Failure to quote within a reasonable time carries a penalty as against the railroad of $250.00, accruable to the United States.

(Continued in March 7 Issue.)

FREIGHT TARIFF CHANGES.

The following changes in freight rates, as they affect clay products, have become effective since our last issue, with the exception of those that are accompanied with the effective dates—none later than the 20th inst.

From Eastern Points.

From Baltimore, Md., import clay, to Covington, Va., 10c per cwt.

From Beech Creek, Bigler, Clearfield, Clymer, Faunce, Irvona, Karthus, Krebs, Lock Haven, Lumber, Mahaffey, Mill Hall, Monument, Orviston, Patton, Phillipsburg, Snow Shoe, Wallaceton and Woodland, Pa., to Longueil, Que., $4.05 per net ton.

From Buffalo, Black Rock and Suspension Bridge, N. Y., brick, clay conduits and articles taking same rates, to Aurora, Bartlett and Batavia, Ill., $2.25 per net ton.

From Gettysburg and Mount Holly Springs, Pa., brick, (common, vitrified, paving, fire) and paving blocks, to Invington, N. J., $1.60 per net ton.

From Hancock, Md., brick, to Kayser, W. Va., $1.25 per net ton.

From Horse Heads, N. Y., brick, to Knoxville, Pa., $1.15 per net ton.

From Kushequa, Pa., brick and articles taking same rates, to Clarendon, Ludlow, Sheffield, Warren and Wetmore, Pa., 95c per net ton.

From Mill Hall, Pa., fire-brick and fire-clay, to Augusta Springs and Fordwick, Va., $3.20 per net ton.

From Moscow, Pa., brick to Bethlehem, Pa., $1.20 per net ton; to Saylorsburg, Pa., 80c per net ton.

From Pen Argyl, Pa., to Mt. Bethel, Pa., and Upper Bangor Branch, N. J., 80c per net ton; to Hainesburg Junction, N. J., 90c per net ton.

From Philadelphia, Pa., import clay, to Covington, Va., 11c per cwt.

From Port Murray and Washington, N. J., to Hauto and Danielsville, Pa., $1.40 per net ton.

From Rochester, N. Y., brick, clay and clay products, to Boston, Mass., and rate points and to Hartford, Conn., and rate points, $2.60 per net ton.

From Spring Garden, York Farm Junction and Westwood Siding, Pa., to Boston, Mass., and rate points and to Hartford, Conn., and rate points, $2.70 per net ton.

From Woodland, Lock Haven, Clymer, Clearfield, Mill Hall and Krebs, Pa., and other Pennsylvania points, fire brick and fire clay, to Fordwick, Va., $3.20 per net ton.

From Southern Points.

From Albany, Ga., brick (pressed, common paving and fire) to Beamfort, Charleston and Port Royal, S. C. 5½c per cwt.

From Fernandina and Jacksonville, Fla., common brick, to Savannah, Ga., $1.80 per M. brick.

From Fort Runyon and Waterloo, Va., brick (common) to Allentown, Bethlehem, Catasauqua and Easton, Pa., $1.90 per net ton; to Scranton, Pa., $2.20 per net ton; to Wilkesbarre, Pa., $2.00 per net ton.

From Graves Mines, Ala., brick, to Memphis, Tenn., 8c per cwt.

From Jackson, Tenn., brick (common) to Columbus, Miss., 5½c per cwt.

From Middle West Points.

From Alliance, Minerva and Palmyra, Ohio, brick, tile and articles taking same rates, to South Freeport, Ill., $2.45 per net ton (basis $1.65 to Chicago).

From Bay City, Paines, South Bay City and Saginaw, Mich., brick, clay conduits and articles taking the same rates to Aurora, Bartlett and Batavia, Ill., $1.90 per net ton.

From Bay City and Saginaw, Mich., brick and articles taking same rates, to Elgin, Ill., $1.90 per net ton.

From Bay City, Saginaw, Detroit, Milwaukee Junc., and West Detroit, Mich., brick and articles taking same rates, to Elgin, Ill., $1.90 per net ton.

From Brownstown and Loogootee, Ind., brick, to Aurora and Elgin, Ill., $1.45 per net ton.

From Cayuga, Ind., brick, to Aurora, Batavia, Elgin, Spaulding, West Chicago and St. Charles, Ill., $1.20 per net ton.

From Dillonvale, Ohio, brick, tile and articles taking same rates, to South Freeport, Ill., $2.65 per net ton (basis $1.85 to Chicago).

From Evansville, Ind., brick and articles taking same rates, to Addison, Ill., $1.75 per net ton; to Aurora, Batavia, Elgin, Elmhurst, Geneva, Ingalton and Minooka, Ill., and other Illinois points, $1.75 per net ton.

From Kokomo and Marion, Ind., brick, to Aurora, Batavia, Elgin, Spaulding, West Chicago, and St. Charles, Ill., $1.30 per net ton.

From Medora and Vincennes, Ind., brick, to Aurora and Elgin, Ill., $1.40 per net ton.

From Menominee, Mich., brick, to Crystal Falls, Mich., 6c per cwt.

From Toledo, Ohio, brick, to Aurora, Batavia, Elgin, Spaulding, West Chicago and St. Charles, Ill., $1.90 per net ton.

From Toledo, Ohio, brick and articles taking same rates, to Elgin, Ill., $1.90 per net ton.

From Veedersburg, Ind., brick, to Aurora, Batavia, Elgin, Spaulding, West Chicago, and St. Charles, Ill., $1.20 per net ton.

From Western Points.

From Arcadia, Cherryvale, Columbus, Fredonia, Fort Scott, Girard, Mound Valley and Neodesha, Kas., Liberal, Mo., and other points, brick (vitrified) to Omaha, Neb., 7½c per cwt. (Effective Feb. 20.)

From Arcadia, Cherryvale, Fort Scott, Fredonia, Pittsburg, Neodesha and Mound Valley, Kas., and other points, brick (except bath and enameled) including fire-clay and hollow building tile, to Fredonia, Neb., 10½c per cwt.

From Browington and Liberal, Mo., and other points, brick (except bath and enameled) including fire-clay and hollow building tile, to Fredonia, Kas., 10½c per cwt.

From Caney, Carlyle, Chanute, Cherryvale, Coffeyville, Elk City, Fredonia, Humboldt, Independence, Iola, Moline, Peru and Pittsburg, Kas., brick (except bath and enameled), including fire-brick, fire-clay and hollow building tile, to Sioux City, Iowa, 11¾c per cwt. (Effective Feb. 20.)

From Kansas City, Mo., brick, to Cedar Rapids, Iowa, 7½c per cwt.

From Montrose, Colo., common or pressed brick, to Salt Lake City, Utah, 20c per cwt.

From New Albany, Kas., brick (vitrified), to Omaha. Neb., 8½c per cwt. (Effective Feb. 20.)

From Omaha, Neb., brick (vitrified). to Arcadia. Cherryvale, Columbus. Fredonia, Fort Scott, Girard, Mound Valley and Neodesha, Kas., and Liberal, Mo., 7½c per cwt. (Effective Feb. 20.)

From Omaha. Neb., brick (vitrified), to New Albany, Kas., 8½ per cwt. (Effective Feb. 20.)

Fire Brick Men Win Case.

The Interstate Commerce Commission has upheld the contention of the LaClede-Christy Clay Products Company and the Evans-Howard Fire Brick Company that a "Brick is a brick" and has ordered that the rates to "Texas Common Points" on shipments from St. Louis and Versailles, Mo., shall, beginning Feb. 15, 1914, be no higher than those charged for the transportation of pressed, face, building, paving or porous brick from the points mentioned to the various destinations known as "Texas common points." The order is dated Dec. 4, 1913, and provides that the new rates on fire brick and fire clay in carloads shall remain in effect for two years from Feb. 15, 1914, and that the reduced rates shall be established and published sufficiently in advance of the date named, to make them legally in effect on the said date.

Williams Wet Clay Grinder

This is the ONLY machine that will GRIND clay and shale direct from the bank at ALL times WITHOUT CHOKING UP.

ALL ADJUSTMENTS PATENTED

The Williams is manufactured and licensed under ninety-seven separate and distinct patents.

The Only Machine of Its Character Made

The hammers are adjustable and the position of grinding plates may be changed at will while the mill is in motion. This is done by a hand wheel on outside of machine.

The Williams is thoroughly steam-jacketed both front and back, including the hopper, top and bottom of machine.

We Can Work Any Clay That Will Make Brick

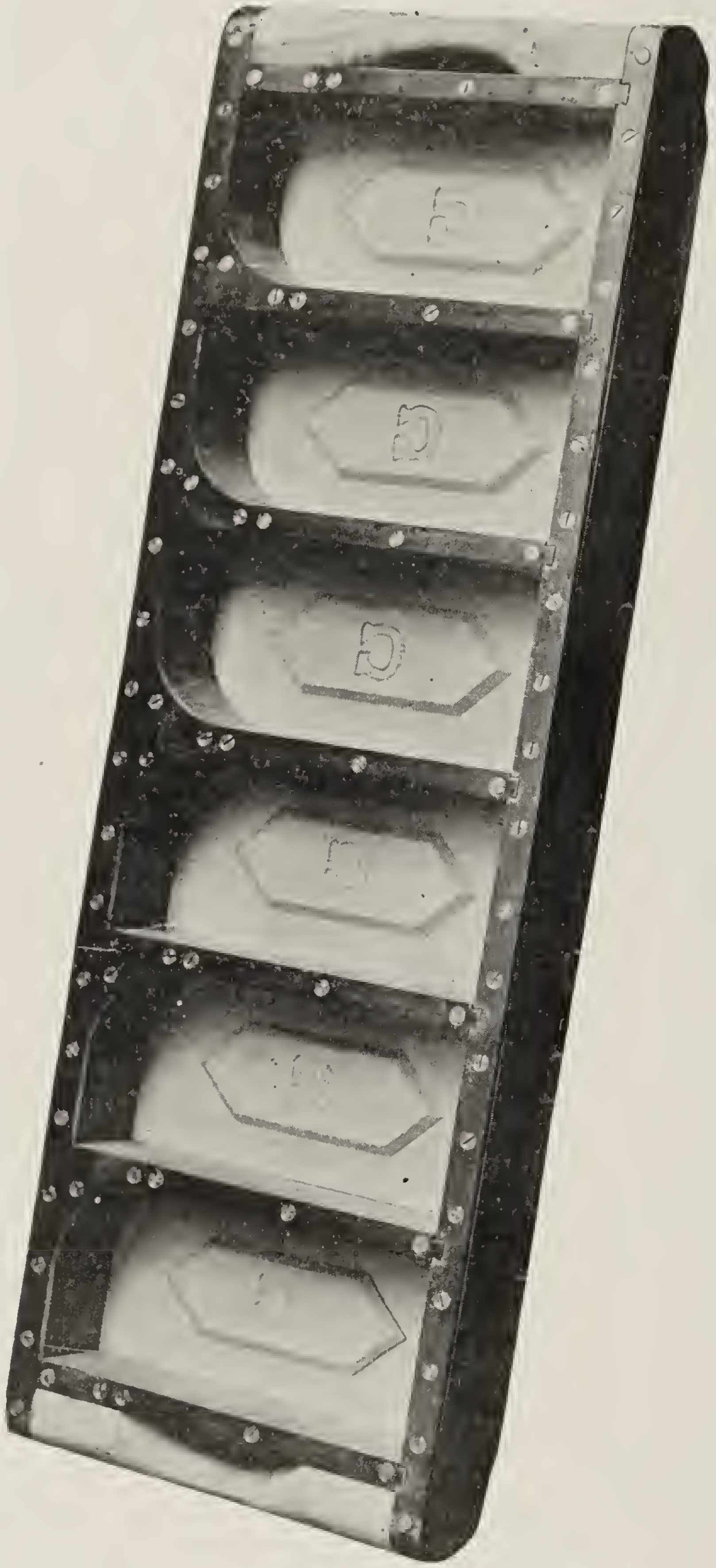
Write for Complete Clay Catalog No. 18 with List of Users and Endorsements.

Williams Patent Crusher & Pulverizer Co.

Factory: St. Louis, Mo. 2701 No. Broadway
CHICAGO OFFICE: Old Colony Bldg.
SAN FRANCISCO OFFICE: 268 Market St.

Machine and Hand Brick Moulds

of Every Description



Write for Detailed Description and Prices

The G. B. Mentz Co.

America's Foremost Mould Makers

Wallkill, N. Y.

Machines & Equipment

Chambers Brothers Company's New Catalogue.

In a new catalogue that has recently come from the presses, the Chambers Brothers Company of Philadelphia calls attention to the fact that clayworkers should not pay undue attention to first cost in considering the purchase of machinery. It says, in part:

"Do not give the purchase price, or first cost, of a piece of brickmaking machinery too much prominence in your consideration. The question of greater output, uninterrupted work, greater durability, continuous brickmaking service, are of far more importance. Clayworking machinery, in comparison with that used in many lines of manufacture, is particularly subject to hard use, and any reasonable expenditure in cost of building that will minimize wear or its effects, is in the interest of the purchaser. The dimensions adopted by the National Brick Manufacturers' Association for a standard, hard-burned common building brick are 8¼ by 4 by 2¼ inches, and for a pressed face brick, 8⅜ by 4 by 2⅜ inches. The advertised capacity of our various machines is ample for these sizes of brick. The trade acceptance of 'a brick' in one section of the United States involves about 75 cubic inches of raw material, while at another point, the same designation imposes upon the manufacturer more than 115 cubic inches. These facts should not be overlooked when comparing statements of machine outputs, costs of production, selling prices, etc."

The catalogue contains complete descriptions of auger brick machines, expressing screws, machine dies, cutters, machinery for hollow block, cutting wires, represses, granulators and feeders, mixing and pugging machinery, dry-pans, wet-pans, clay screens, rolls, sand dryers, conveyors, elevators, shafting, pulleys, journal bearings, hoists, dump-cars, barrows, offbearing trucks, dryers, transfer cars, turntables, dryer cars, kiln castings and tools, furnace frames and doors.

It describes in detail the facilities the company affords prospective and actual clayworkers, for the analysis of their clay, and in this connection says:

"Too much care cannot be taken in selecting clay. Without suitable materials it will be impossible to make a good quality of brick by any process or machinery. Materials of quicksand nature holding so much water that when pugged they become soft are not suitable for the auger machine process. With this exception nearly any material that can be molded with the aid of water can be handled by some of our machines. Some materials worked have only 20 per cent of clay.

"While an actual working test of clay on a full-sized machine is not always necessary, we consider this the safest course, and, as a rule, prefer to make such tests at our works before executing orders for brick machines. We keep machines under belt for the express purpose of making tests and obtaining samples of product for customer's approval. From three to four barrels of the material to be worked are required, and this should represent, so far as possible, the average run of the clay bank, and not simply one stratum only. This must be shipped to us, freight prepaid, and should bear customer's name in addition to our address. A charge is made for tests, the amount paid, however, being refunded to purchasers of our machinery."

Standard Refractories Starts New Plant.

The Standard Refractories Company are about to start the manufacture of silica brick at their new up-to-the-minute plant, which is located at Claysburg, Pa., in the heart of the finest ganister rock district in Pennsylvania. Thomas N. Kurtz is president and general manager of this new concern, with W. G. Fisher as superintendent. Mr. Kurtz was with the Mt. Union Silica Brick Co., and Mr. Fisher with the Harbison Walker Refractories Co. for a number of years, both holding official positions with these concerns. The new plant is equipped almost entirely with electrical driven machinery, which is of the latest type. A large Wicks boiler, fired from the waste heat taken from the kilns will furnish steam to drive the dynamo engines. This concern has endeavored to utilize all waste in manufacture, which will insure a fair competition with all concerns already established. The dryer equipment is of the very latest type, having been installed by H. W. Gerlock, of Huntingdon, Pa. "Brick and Clay Record" extends a hearty welcome to this new concern in the field and wishes it the success its enterprise merits.

The 1914 sales convention of the American Blower Company was held in Detroit on January 28, 29 and 30, and was attended by fifty of the company's sales and engineering representatives. The annual banquet was held at the Cadillac Hotel. Business sessions were held both at the hotel and the company's home offices. Many important and interesting subjects were discussed and decided upon. Contrary to expectations, pessimism had no place whatever during any part of the convention and everybody left having a very optimistic view for even more and better business for 1914, than was booked during the previous year.

John Moroney, of the Chicago Brick Machinery Company, says that he received a "Go to Church Sunday" circular signed A. P. Avery. The "King of Ireland" looked at the initials and decided not to answer the call.

Standard Dry Kiln Company's New Catalogue.

A well designed, well printed booklet, describing the Standard Brick Drier, has been issued by the Standard Dry Kiln Company of Indianapolis, Ind. It sets forth, in a concise, but convincing manner, the excellent points of this type of drier, and submit incontrovertible proof of the claim that it is adaptable for any clay, and for brick and all other clay products. With this is a number of illustrations and descriptive matter of drier accessories, cars, tracks, switches and turntables. Clayworkers who wish to be up-to-the-minute on plant economy and improvement, will do well to send for this catalogue. In the language of the advertising man—"Do It Now."

Dunn Licenses Another Paving Plant.

Announcement has been recently made that the McAvoy Vitrified Brick Company of Philadelphia, Pa., has been licensed to make the Dunn Wire-Cut-Lug Paving Block. This is the first plant to take up the manufacture of the Dunn block in the Atlantic coast section.

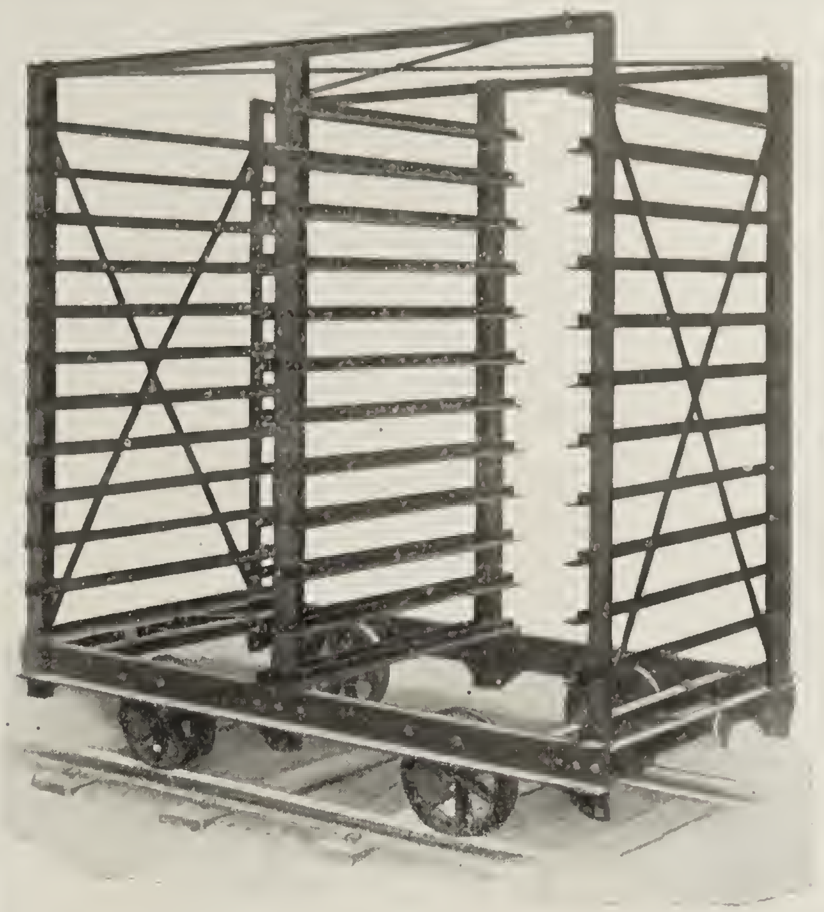
New Steam Shovel Catalogue.

A catalogue so small that it may be easily carried in a man's pocket, and yet so full of information that it is an absolute necessity to the man who wants to be posted on plant equipment, has been issued by the Marion Steam Shovel Company, of Marion, Ohio. It is called "Catalogue No. 56" and describes in detail, the smaller series of steam shovels manufactured by the Marion Steam Shovel Company. It is very evident that, in compiling this catalogue, the Marion people had their prophetic eye on the busy man, for it opens in a way that makes it easy to hold it in one hand, and leaf over with the other, and wastes neither space nor time in the reading, since it tells, in a very concise way, of the different phases of excavating to which these shovels are adapted. The index shows the same consideration for the busy man, for it enables him to turn readily to any particular data which may interest him, without having to hunt for it through other equally valuable data, but which, for the moment, is not interesting to him. It gives a table of working dimensions that gives a quick and easy method for obtaining specification data on all three of the smaller revolving shovels, and in many other ways, assists the clayworker in figuring places where he can cut costs—the vital question of the industry.

Berg Machinery Co.'s New Salesman.

Canadian brickmakers may look forward to a call from Sidney P. Stillwaugh, the young man whose portrait accompanies this item. He will have in his hand the business card of the Berg Machinery Mfg. Co., Ltd., of Toronto, and in his head a much riper experience in the art of clayworking than his years would promise. The reason for the latter is that he is a son of J. P. Stillwaugh, who for 30 years was owner of the Hamilton (Ohio) Brick Company, and now conducts the Medina Shale Brick Company at Streetsville, Ont. The younger man spent eight years with his father, and later became general superintendent of Spinks' plant at Covington, Ont. This plant has a capacity of 100,000 brick daily and it will be seen from this, that Sidney P. Stillwaugh has had some experience on a big yard. Incidentally, the brick were burned in a big continuous, gas-fired kiln, so he has some practical experience with this branch of brickmaking. He will, beyond a doubt, prove a valuable acquisition to the Berg forces.

Sidney P. Stillwaugh.



Read what users of the Gerlock Car have to say

Letter No. 1.

MOUNT UNION REFRACTORIES CO.
SILICA and MAGNESIA BRICK.
MOUNT UNION, PENN'A.

Mount Union, Pa., March 25th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We are pleased to advise you of our entire satisfaction with the Steel Dryer Cars which you have furnished us during the past year—150 of these cars were delivered about nine months ago and the 30 additional cars about two months ago—and we are very much pleased with them in every respect.

Yours very truly,
MOUNT UNION REFRACTORIES CO.,
F. D. Halstead,
Secretary and Treasurer.

Letter No. 2.

GENERAL REFRACTORIES COMPANY.
Manufacturers, Dealers and Importers
SILICA, MAGNESIA, CLAY and CHROME BRICK.

BLAIR SILICA BRICK WORKS,
James H. France, General Manager.
Claysburg, Penn'a, January 16th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We have been using your Steel Dryer Cars at our plant for the past three years along with two other makes of cars, and it gives us much pleasure to state that we are assuredly of the opinion that your cars in the points of durability, strength of construction and ease of operation, are far superior to any others that we have in use here or have seen in operation at plants which we have visited. We have adopted your car as our standard and will place all future business with you, knowing from past experience that we will receive the best car at all times at the right price.

Yours very truly,
GENERAL REFRACTORIES CO.,
Per E. M. France.

Be Convinced—send us a trial order.

H. W. Gerlock
Huntingdon Pennsylvania

THE BUYERS' DIRECTORY
Of Clay Products Machinery Manufacturers

Analysts and Chemists, Clay.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.

Aerial Tramways.
Broderick & Bascom Rope Co.

Automatic Cutters.
(See Cutters.)

Barrows and Trucks.
Berg. Machy. Mfg. Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Eng. Co.
Lansing Co.
Manufacturers Equipment Co.
Martin Bk. Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belts.
American Fabric Belting Co.
Berg Machy. Mfg. Co., Ltd.
Freese & Co., E. M.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Raymond Co., C. W.
Sawyer Belting Co.

Belt Conveyors.
American Fabric Belting Co.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Dodge Mfg. Co.
Fate Co., J. D.
Freese & Co., E. M.
Gandy Belting Co.
Main Belting Co.
Manufacturers Equipment Co.
Raymond Co., C. W.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

Blocks.
Broderick & Bascom Rope Co.

Blowers.
American Blower Co.
Berg Machy. Mfg. Co., Ltd.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., C. W.
Rodgers Eng. Co., L. E.
Sturtevant Co., B. F.
Trautwein Dryer & Eng. Co.

Boilers.
(See Engines and Boilers.)

Brick-Handling Machinery.
Mathews Gravity Carrier Co.

Brick Machinery.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Clearfield Machine Shops.
Eastern Machy. Co.
Fate Co., The, J. D.
Freese & Co., E. M.
Jackson & Church Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Steele & Sons, J. C.

Brick Machines (Dry Press).
Berg Machy. Mfg. Co., Ltd.
Chicago Brick Machy. Co.
Raymond Co., C. W.

Brick Machines (Soft Mud.)
Eastern Machy. Co.
Manufacturers Equipment Co.
Martin Bk. Mc. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., C. W.

Brick Machines (Stiff Mud.)
Bonnot Co., The.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Raymond Co., C. W.
Steele & Sons, J. C.

Brick Recutter.
Raymond Co., C. W.

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars, Trucks and Turntables.
Atlas Car & Mfg. Co.
Berg Machy. Mfg. Co., Ltd.
Chase Fdy. & Mfg. Co.
Fate Co., J. D.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Eng. Co.
Martin Brick Mach. Mfg. Co.
Raymond Co., C. W.
Weller Mfg. Co.

Cars (Clay).
Atlas Car & Mfg. Co.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co,
Fate Co., J. D.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Schultz & Son, A. L.
Weller Mfg. Co.

Cars (Dryer).
Atlas Car & Mfg. Co.
Berg Machy. Mfg. Co., Ltd.
Chase Fdry. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gerlock, H. W.
Lakewood Eng. Co.
Lansing Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Sturtevant Co., B. F.
Vulcan Iron Works.

Cars (Electric).
Atlas Car & Mfg. Co.
Freese & Co., E. M.

Cars (Special).
Fate Co., The J. D.
Freese & Co., E. M.

Castings.
Allen American Manganese Steel Co., Edgar.
Berg Machy. Mfg. Co., Ltd.
Chambers Bros. Co.
Clearfield Machine Shops.
Dodge Mfg. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Vulcan Iron Works.

Clay Feeders and Mixers.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Mach. Fdy. & Sup. Co.
Raymond Co., C. W.
Schaffer Eng. & Eq. Co., The.

Clay Handling Machinery.
Brewer & Co., H.
Fate Co., The J. D.
Lakewood Eng. Co.
Raymond Co., C. W.
Weller Mfg. Co.

Clay Technologist.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Fate Co., The J. D.
Hunt & Co., Robt. W.
Richardson-Lovejoy Eng. Co.

Clutches (Friction).
Chambers Bros. Co.
Dodge Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Schultz & Son, A. L.
Weller Mfg. Co.

Coloring.
Clinton Metallic Paint Co.

Contracting Engineers and Machinists.
Berg Machy. Mfg. Co., Ltd.
Chambers Bros. Co.
Dodge Mfg. Co.
Manufacturers Equipment Co.

Cordage.
Broderick & Bascom Rope Co.

Crushers.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Williams Patent C. & Pul. Co.

Cutters, Automatic Rotary.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Fate Co., J. D.
Freese & Co., E. M.
Marion M., Fdry. & Sup. Co.
Martin Brick Mach. Mfg. Co.
Raymond Co., C. W.
Steele & Sons, J. C.

Cutting Wires.
Berg. Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., C. W.
Webb Wire Works.

Dies.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Raymond Co., C. W.

Disintegrators.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion M. Fdry. & Supply Co.
Martin Brick Mach. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Williams Patent C. & Pulv. Co.

Dryer Cars.
(See Cars.)

Dryers.
American Blower Co.
American Process Co.
Berg Machy. Mfg. Co., Ltd.
Boss Co., The J. C.
Chambers Bros. Co.
Denison Ceramic Eng. Co.
Fate Co., The J. D.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Eng. Co., L. E.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Sturtevant Co., B. F.
Trautwein Dryer & Eng. Co.

Dryers (Sand.
Schaffer Eng. & Eq. Co., The.

Dry Pans.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Eagle Iron Works.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Raymond Co., C. W.

Dynamos and Generators.
General Electric Co.
Westinghouse Elec. & Mfg. Co.

Electric Shovels.
Thew Automatic Shovel Co.

Electrical Furnaces.
Engelhard, Chas.

Electrical Instruments.
Brown Instrument Co.
Engelhard, Chas.

Elevator Buckets.
Berg Machy. Mfg. Co., Ltd.
Dodge Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., C. W.
Weller Mfg. Co.

IN THIS NUMBER: CONDENSED TELEGRAPHIC REPORT OF NEW ORLEANS CONVENTIONS

BRICK and CLAY RECORD

C. E. FOSTER

PRES. EASTERN PAVING BRICK MFRS. ASSN.

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CHICAGO, MARCH 7, 1914

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"Brick and Clay Record' Has Double the Paid Circulation of Any Other Clay Journal Published

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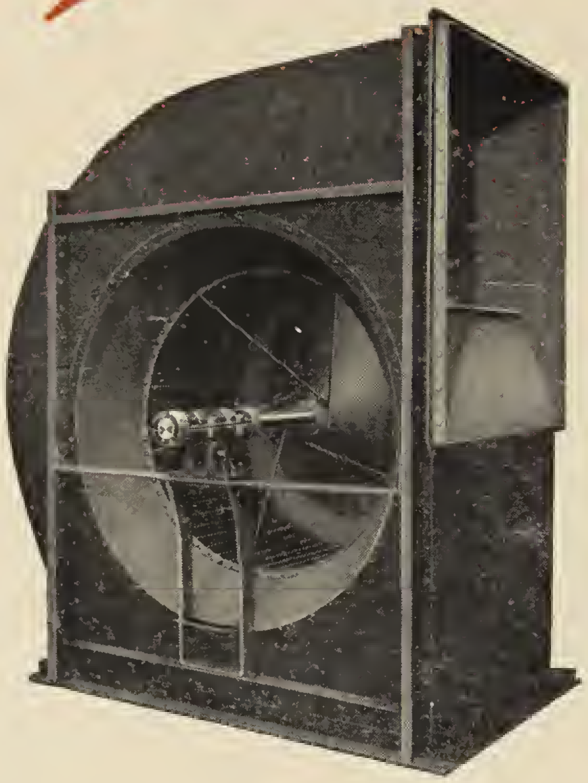
TRADE MARK



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By employing a "Sirocco" Waste Heat System that same heat is **saved** and made to do a duty which otherwise would cost **real money.**

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BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

THE optimism that is spreading throughout the country promises well for 1914. There is not an industry—there is not a field of endeavor—that has not been touched by this hopeful feeling. The steel man—the first to show a spirit of unrest and the first to curtail plans for the future last Fall when the currency bill was pending in Congress—is, likewise, the first to show a revival of interest in the future.

And, following suit, practically every industry has begun to plan.

The clayworker, one of the last to feel the effect of the slump in business, had barely time to know that there was a halt in the onward movement, when business recovered from its scare.

Some men are born "small," through no fault of theirs and are to be pitied. Others become narrow-minded by choice and insist on remaining so. These are a social blot—a cancerous growth on humanity and soon become isolated—the process of elimination being slow but sure.

Whatever plans, therefore, the clayworker had in mind did not require changing.

The increased business which the past year's demand encouraged him to believe was coming, is just as promising.

And the new plants scheduled and the improvements and added equipment contemplated will be erected or installed, as the case may be, with but few exceptions.

Wall street—that great pulse of the financial world, has placed its approval on the promise of better times.

The banks throughout the Nation, awaiting this endorsement, are now loosening the purse strings and there is a steady flow of money into the channels of commerce and industry.

It is a rosy outlook.

But, there will be no great boom, for the day of the BUBBLE has passed.

There will be, however, a sane, healthy prosperity. STABILITY will mark every step.

And the man who follows CONSERVATIVE plans and who LOOKS well before he leaps will reap a bountiful harvest.

Sing the song of optimism. Give the Pessimist a kick and send him into oblivion, for there is no room for him.

And you clayworkers—while observing the keynote of conservatism, do not overplay it.

Do not mistake Cowardice for Conservatism.

Do not slow up so much that you will not have sufficient speed to take Prosperity when it rushes by.

If you have not capacity for an increased business plan to have it before the new season opens.

If your equipment is antiquated see that it is up to date, so that the greatest possible efficiency may be had from it.

If your selling methods are behind the times revamp them—remodel them—put them on a practical, business-getting basis.

The tendency of the times is CONSERVATISM. It is a most encouraging tendency and the clayworker must not permit greed to shove it in the background.

EFFICIENCY is a word that has been glibly used by everyone who has something to barter. If a laborer seeks to sell his services he tells the employer what an EFFICIENT laborer he is. If a bookkeeper wants to secure a position he tells the chief auditor what an EFFICIENT man he is.

The same is true of the man that makes machinery. His advertising is filled with EFFICIENCY arguments. The machine he

The Editor's Corner

makes does better work and more work in a more EFFICIENT manner than that made by a rival concern.

The manufacturer comes along and gives you the same sing-song about his wares.

The dry goods merchant tells you to buy from him because his purchasing staff is the most EFFICIENT in the world—because he has the most EFFICIENT delivery system.

Everyone is talking EFFICIENCY. The cook in the kitchen—the boy at school—you—me—not one of the inhabitants on this mundane sphere is immune.

What does it all mean? Do YOU know? Do I know?

Some of us have a vague idea what the term implies. Others say we understand it thoroughly and try to prove the point.

And there is a few who admit they do not know but excuse themselves by saying that they are working the word overtime because everyone else is doing it.

We all know thus much:

It is a fairly good-sized word and has four syllables. We also know that it has SOMETHING to do with WHAT we do and HOW we do it. Further than that our ideas are confused—our reasoning is imperfect.

If we say we are INEFFICIENT we know it is a term to imply that we have FAILED to do SOMETHING we SHOULD have done.

If a kiln turns out a bad burn we know that there has been INefficiency somewhere and we charge it up to the burner.

If we fail to land a big job of brick we know there has been INefficiency somewhere and we blame the salesman.

If we find we are unable to manufacture our drain tile at a price that enables us to sell it as low as our competitor and still make a fair profit, we say there is lack of EFFICIENCY somewhere and accuse the superintendent.

What does EFFICIENCY mean as applied to a machine?

Webster says it is "The ratio of energy or work that is got out of a machine to the energy put in."

What does EFFICIENCY mean as applied to man?

Webster calls an EFFICIENT man one who has "Economic productivity".

Shaved of all unnecessary verbiage—trimmed down to spare-rib bluntness, efficiency means simply "getting the BEST" out of your machine, your men, your business, yourself.

We know if we are not feeling just right—if our livers are not working properly—if our digestions are not in good order—we know that we cannot think and act to our fullest capacity.

The same is true of your machines. If your equipment is not properly installed—if it is not properly maintained, you will not get the fullest measure of efficiency from it.

If your men are not properly trained—if they are not given every advantage—they will not give you the fullest measure of efficiency.

An oil cup may make your machine 10 per cent better in efficiency.

Proper discipline and humane treatment may add one hour's efficiency to your employes' day.

Study the little things about your plant and men.

Plan to increase the output and quality of your ware at the lowest possible cost.

Teach your men how to do their work with the least waste of time, material and energy.

When you have accomplished these things you are getting EFFICIENCY—and efficiency means PROFITS.

One clayworker who subscribes to "Brick and Clay Record" because he wants to read it himself, subscribes for two additional copies which he passes among his employes. He figures the $4.00 invested bring him back 1,000 per cent interest in increased efficiency. Why not make better workmen out of your men and profit by it ?

Eben Rodgers Heads the

National Brick Manufacturers' Association Selects Illinois Paving Block Maker as President for 1914

The following story is a condensed report of the convention telegraphed from New Orleans by Editor Wells. This edition of the magazine was held four days to give our readers this epitome of the news without having to wait two weeks.

Grunewald Hotel Where Convention Headquarters Were.

EBEN RODGERS of the Alton Paving Brick Company, Alton, Illinois, is to head the National Brick Manufacturers' Association in nineteen fourteen and Theodore A. Randall, who for the twenty-eight years of the existence of the organization has been its secretary is to again occupy the position. The election of these two, together with the selection of the other officers of the association, was unanimous and took place Wednesday, the opening day of the convention in the Grunewald hotel in this city.

John W. Sibley, who for so many years has been the treasurer, was again elected. By the usual procedure, the vice-presidents moved up another notch and C. P. Mayer, of Bridgeville, Pa., who was second vice-president last year, became first vice-president for nineteen fourteen and, naturally is the next in line for the presidency. Charles J. Deckman, of Cleveland, Ohio, who was third vice-president became Mr. Mayer's successor and Fritz Salmen, the man who was instrumental in bringing the convention to New Orleans, was honored by being given the post of third vice-president.

The convention proper did not open until Wednesday morning but the first two days of the week were well occupied by meetings and preliminary work.

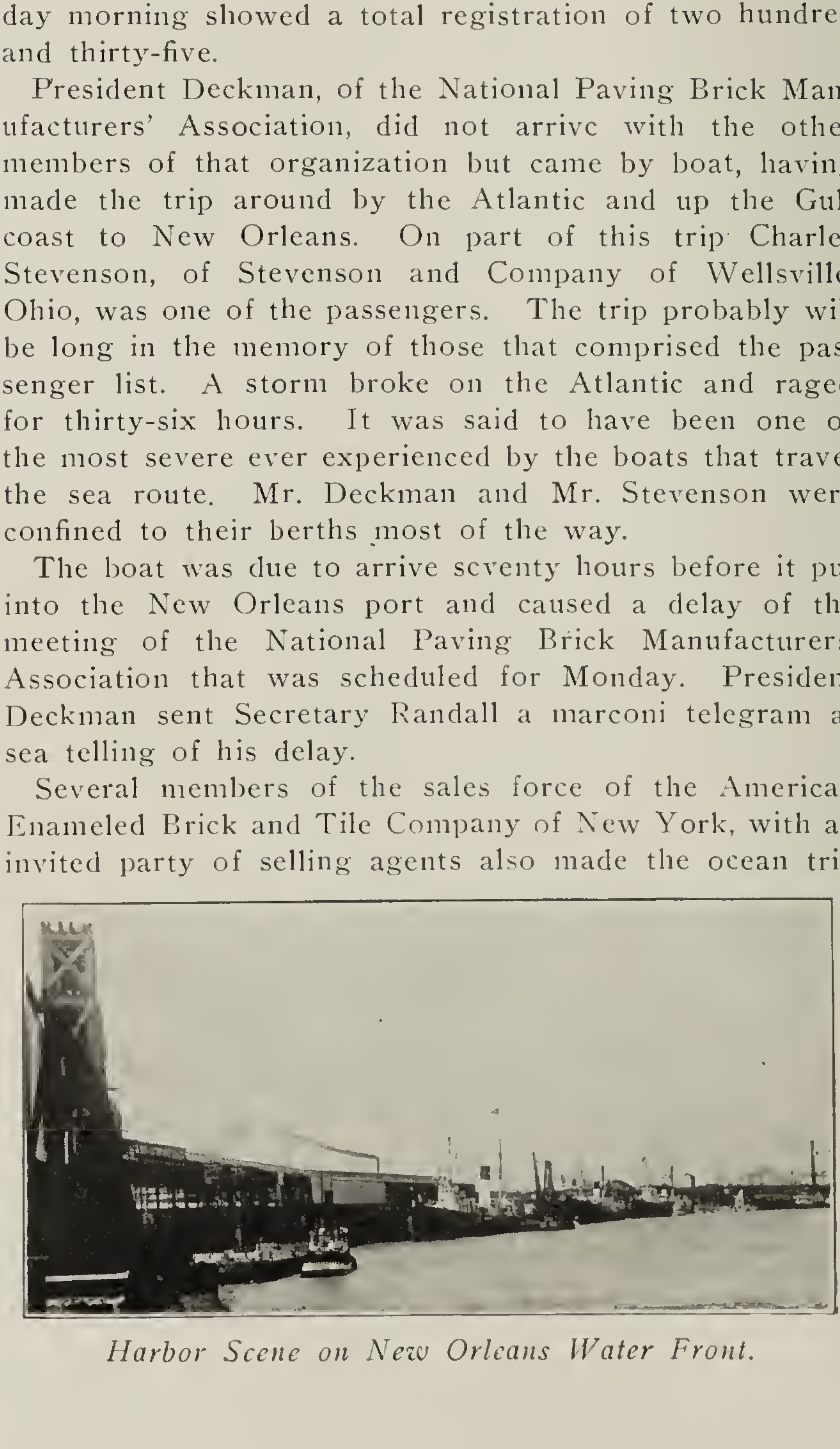
Monday the first real delegation to the convention arrived in a carload of paving brick manufacturers headed by Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association. This delegation, some twenty or more strong, arrived early in the day after several delays on the road. Later in the afternoon the Chaldean Special came in practically on time, with nearly a hundred Chaldeans, their wives and their friends.

Other delegations arrived during the night, none quite so large it is true, but by Wednesday morning about one-fifth had registered at convention headquarters. Other delegates continued to arrive as late as Wednesday and the official roster as issued by Secretary Randall Wednesday morning showed a total registration of two hundred and thirty-five.

President Deckman, of the National Paving Brick Manufacturers' Association, did not arrive with the other members of that organization but came by boat, having made the trip around by the Atlantic and up the Gulf coast to New Orleans. On part of this trip Charles Stevenson, of Stevenson and Company of Wellsville, Ohio, was one of the passengers. The trip probably will be long in the memory of those that comprised the passenger list. A storm broke on the Atlantic and raged for thirty-six hours. It was said to have been one of the most severe ever experienced by the boats that travel the sea route. Mr. Deckman and Mr. Stevenson were confined to their berths most of the way.

The boat was due to arrive seventy hours before it put into the New Orleans port and caused a delay of the meeting of the National Paving Brick Manufacturers' Association that was scheduled for Monday. President Deckman sent Secretary Randall a marconi telegram at sea telling of his delay.

Several members of the sales force of the American Enameled Brick and Tile Company of New York, with an invited party of selling agents also made the ocean trip



Harbor Scene on New Orleans Water Front.

Clayworkers This Year

Light Attendance Does Not Dampen the Enthusiasm of Delegates Who Take the Long Trip South

A full report of the convention of the N. B. M. A. and the meetings of the Chaldeans, the Paving Brick Association and the Machinery Manufacturers' Association will appear in the March 17 number of "Brick and Clay Record."

from New York to New Orleans and were caught in the storm.

The opening of the National Brick Manufacturers' Association convention Wednesday found a full attendance of those delegates then in the city. The early hours of the session were marked by the reports of Secretary Randall and Treasurer Sibley. The election of officers followed. The hour was so late that only one paper on the morning's programme was read.

Thursday morning the regular programme was carried out with the addition of an extra feature in the illustrated lecture by Edward Orton, Jr.

Friday was devoted to the reading of the technical papers prepared and the convention came to a close. There were several very interesting features on the entertainmnt programme.

Special automobile trips were taken by the delegates during the day. A boat ride down the Mississippi river and a trip to the Salmen Brick and Lumber Company's plant were also scheduled. Thursday evening a smoker and vaudeville show was given the men and a theatre party to the ladies. Wednesday evening the Chaldeans held their annual entertainment. Thursday evening the annual banquet of the convention was held.

During the week several executive sessions of the National Paving Brick Manufacturers' Association were held. The most important action taken in these sessions was the decision to revise the number one specifications. It is proposed to act in conjunction with the various National organizations that have an interest in paving matters and adopt a uniform specification.

The Machinery Manufacturers' Association held two meetings during the week. One of these was on Wednesday and the other Thursday. At the first session John C. Boss, of Elkhart, Indiana, was elected president and Roy Bennett, of Wellington, Ohio, secretary. The machinery men decided to take hold of the organization work with greater zest in nineteen fourteen and mapped out a campaign. The old credit feature of the association which was established several years ago was revived and will be developed to a high degree of efficiency.

The convention closed Friday but many of the delegates stayed over Saturday to finish up some of the sightseeing.

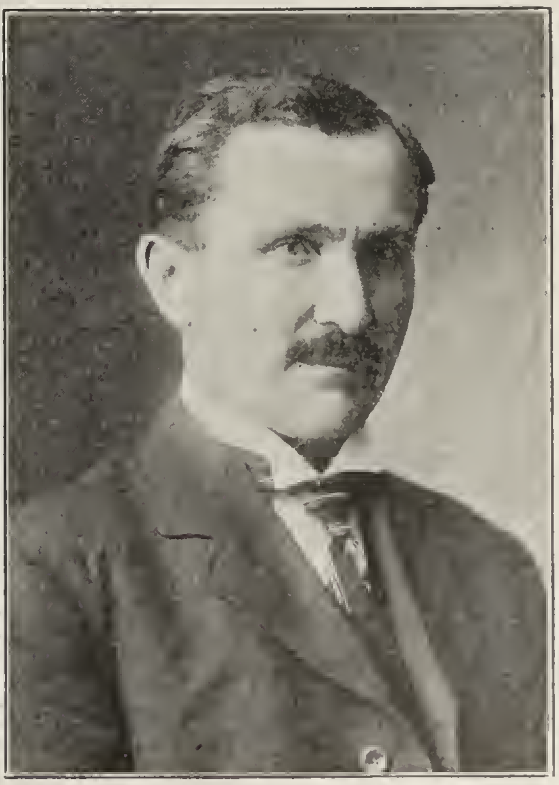
New Orleans has been extremely busy the past few weeks. It is busy all through the Winter season but the past two weeks have been that portion of the carnival or holiday season set apart for the great annual pageant—the Mardi Gras, and King Rex and Prince Revelry have had a reign that must tickle their rotund bodies every time they think of it.

There was still every evidence of the festivities when the clayworkers arrived to take charge of the city and let the people know that burned clay was something to be considered in the construction of great cities. The great parade was over, it was true, and the annual ball given to King Rex was a thing of the past, but merry throngs still filled the streets and avenues and the spirit of jollity prevailed everywhere.

The week has been a great one for the clayworkers. There may not have been as many delegates present at the Convention as on previous occasions, but there is none who came down to attend the sessions who cannot say he has received his money's worth.

EBEN RODGERS
Newly Elected President N. B. M. A.

FRITZ SALMEN
Elected Third Vice-Pres. N. B. M. A.



JOHN C. BOSS
Newly Elected President, M. M. A.

Chaldeans' Trip Boosts

Special Train Takes Nearly Half of the Total Registration to the Annual Meeting of the Clay Workers in the City of the Mardi Gras

The following story of the Chaldean Special train and the trip to the National Brick Manufacturers' convention is a telegraphic report sent to "Brick and Clay Record" by its representatives who made the trip and attended the various sessions of the clayworkers and machinery men.

Corkscrew Path in Mammoth Cave, where the Chaldeans Marched in Single File.

New Orleans, La., March 5.—With nearly one hundred clayworkers aboard, every one of whom was a member of the Ancient Order of Chaldeans, the de luxe special train from Chicago to New Orleans arrived in this city Monday afternoon, within a few minutes of the time published in the schedule. It was declared to be one of the best excursions ever run by an industrial body.

The pleasures of the trip were augmented by the presence of more than two score of ladies, wives and relatives of the Chaldeans, who vied with the Chicago Clay Club and the officers of the Supreme Temple in their efforts to make the ride to New Orleans full of pleasant memories.

There was not an unpleasant feature in the entire two days' trip, which was made without a mishap of any kind Outside of some confusion in the arrangements at Cincinnati, which resulted in the loss of the society of twenty or more clayworkers, who had planned to join the Chaldeans at that point, nothing occurred that gave the slightest dissatisfaction. Owing to a misunderstanding on the part of the railroad officials, the time of the arrival of the train at Cincinnati was given in error, and as a consequence, a large body of clayworkers who would have boarded the Chaldean Special was compelled to take one of the regular trains.

Nearly a score boarded the train at this point, despite this confusion and, with the train nearly an hour late, the trip South was continued. Louisville was reached on schedule time and the train stopped long enough to take on the waiting passengers.

The Mammoth Cave trip was one of the memorable features of the trip. A vote was taken among the passengers on the Special as to whether a stop should be made, and it was unanimously decided, not only to make the stop, but to take plenty of time to inspect the famous natural curiosity. As a consequence, more than two hours were added to the time which had been allotted to the Mammoth Cave trip, and the excursionists were more than glad that this had been agreed to.

At Nashville several passengers were taken aboard and also at Birmingham, Ala., and Montgomery, Ala., the train arriving at the latter place more than two hours late. From this point extra fast time was made and F. W. Morrow, the Northwestern passenger agent of the Louisville and Nashville road, who had personal charge of the train, assured the Chaldeans that they would arrive at their destination on time. From Montgomery to Mobile the trip was made without a stop and most of the way the special went at a mile-a-minute clip.

Mobile was reached on schedule time but nearly an hour was lost here to enable a photographer who had been wired to meet the train to take a group picture of the passengers. The rest of the trip was made without a stop and the special reached New Orleans within a few minutes of the time scheduled. There was some confusion on the arrival of the special at the New Orleans station. It had been planned by the New Orleans reception committee to meet the Chaldeans with automobiles for the women members of the party and convey them to the Grunewald hotel. The Chaldeans were to march to the convention headquarters, give their "yell" and let the natives know they were in town.

Through some confusion as to the plans, the committee did not appear and the parade was omitted. Another disappointment greeted the Chaldeans upon their arrival at the Grunewald hotel. No arrangements had been made for the accommodation of the excursionists either for headquarters, for a night on the week's programme or even for sleeping arrangements. Many of the party had to seek lodging in other hotels and the Chaldeans were

New Orleans Convention

Secret Order of Clayworkers Receives Many New Members and Despite Some Serious Handicaps Gives a Unique Entertainment

The Ancient Order of Chaldeans has established itself firmly in the hearts of well-wishers of burned clay. The emblematic button of the Order was seen everywhere and the slogan "Be a Booster—It Does Not Hurt" was on every tongue. More than two hundred Chaldeans registered at the Chaldean headquarters.

forced to make arrangements at the Saint Charles hotel for a meeting place.

There was some doubt as to whether the Supreme Temple would be able to hold its annual meeting Wednesday night as had been planned, for when the excursionists reached the Grunewald Hotel, it was found that, through an unfortunate combination of circumstances, no meeting place had been secured by the local committee and no provision made in the week's program for the meeting, with its accompanying initiation and entertainment. It was not until late Wednesday afternoon that it was certain that a meeting could be held, without conflicting with plans made by the National Brick Manufacturers' Association. With only two or three hours in which to perfect the preparations, the entertainment was arranged for, and with the characteristic progressive spirit of the Chaldeans, everything was in ship-shape order by the hour for which the meeting was called.

The regular initiation was omitted and the other ceremonies were discarded, and the entire evening was given over to a vaudeville entertainment. Despite the short time in which to make the preliminary arrangements, a splendid program was given and the evening was one of the most enjoyable of the week.

Notwithstanding the handicap under which the Chaldeans worked, and the obstacles that were placed in their way, nearly two hundred registered with the Supreme Keeper of the Tablets, during the week, and the ties that bind the members of the organization to each other in the mystical triad of the three F's were made stronger than ever before. This week has convinced the officers of the Supreme Temple that the need of just such an organization of boosters for clay products is greater than anyone realized during the early months of the organization's life, and officers and members alike have pledged themselves to work with increased interest during 1914.

If the Chaldeans ever had any doubt as to their place in Claydom, there is none now. With the sole purpose of boosting clay product institutions and to bring all factions into one great fraternal body, with a decided plan for unity of action and absolute co-operation, the Ancient Order of Chaldeans, from its highest presiding officer to its newest neophyte will leave New Orleans with a great work ahead and with no question of its ability to achieve these ends.

One of the Subterranean Wonders of Mammoth Cave that will Linger in the Minds of the Chaldeans.

The Chaldeans were in evidence everywhere, the little gold buttons displaying the man-headed, winged bull of ancient Chaldea being seen on the lapel of nearly every delegate to the convention. The hopeful message of good-fellowship and the slogan "Be a Booster—It Does Not Hurt" were heard everywhere.

When it is understood that out of all the delegates present at the convention at least seventy-five per cent were Chaldeans and that more than half of these came to New Orleans on the Chaldean Special train, some idea may be had of the great influence this youthful offspring of the National Brick Manufacturers' Association is having in bringing clayworkers into one great unit of co-operation.

At a special meeting of the Supreme Temple, plans were made for a great work of education during the coming year. It is hoped that before the next N. B. M. A. convention, the message of the Chaldeans will have reached every nook and corner of the land

A complete report of the trip and of what the Chaldeans did at New Orleans will appear in the March 17 issue

Builder-Manufacturer-Organizer

Being a Short Story of a Man Who Builds Plants, Makes Good Brick and Leads a Big Organization—All Without Much Effort

C. E. Foster*

President Foster Paving Brick Company, Bradford, Pa.

THERE is a popular and widespread impression that C. E. Foster went to Bradford, Pa., with a comfortable bank account and a fund of experience acquired at some vague point "out West."

This, it appears, is wrong. His biographer relates that he went to Bradford penniless and without an education, being born there.

The "out West" part of it was his training at Leander Clark college, at Toledo, Iowa—which point, to all those living east of the Hudson river, is very wild country.

During that college course, C. E. Foster became identified with the organization of the Tuna Valley Pressed Brick Company, of Lewis Run, Pa., and later with the Sterling Brick Company and the Allegany Valley Brick Company of Olean, N. Y. These, in addition to the Pearl Clay plant at Kushequa, Pa., and the Kittanning Clay Products Company at Cowanshannock.

In point of fact, every time that "C. E." is not too busy with something else (like vacuum cleaners) he either builds or buys a clayworking plant.

Evincing a wonderful belief in the future of burned clay, he seldom, if ever, sells any of these properties—he just turns them to making something different, or better, than what they made before. Then he declares a dividend. Stock in Foster enterprises has proven a good investment.

"The Foster Line" includes three paving brick plants, with a combined capacity of 30,000,000 block a year; four (or maybe five or six) face-brick plants, making brick that class with the best in America, and a recent report states that another Foster plant will be built shortly in the Kittanning district, and that it will be a model of modernity.

C. E. Foster is well and favorably known to the brickmaking world. His methods are clean-cut and straightforward, his word his bond. His personality is pleasing, he makes friends easily, and holds them firmly. He has a good memory for faces and incidents, a faculty that is peculiarly grateful to those whom he has met casually, and compliments by remembering vividly.

C. E. Foster enters upon his second term as president of the Eastern Paving Brick Manufacturers' Association with the unanimous support of that body, and with the good wishes of paving brick makers throughout the section in which he is working. In building up the Eastern Paving Brick Manufacturers' Assocation, he has improved conditions for all operating plants, affiliated or otherwise.

It remains for the outlanders to come into the fold and give C. E. Foster and the men who have flocked to his standard the support that is due them. No movement can be a failure, or even a moderate success, that combines a guiding power and energy like C. E. Foster's, with the solid support it deserves.

Paving brick makers east of the Ohio state line are face to face with Opportunity. It remains with them to share in the "Foster luck" by giving the "Foster pluck" a whole-hearted, undivided, energetic backing.

A great part of their Present and Promised Prosperity depends upon What They Do with Foster.

**Portrait on Front Cover*

Eastern Paving Brick Manufacturers Adopt Uniform Contract

THE uniform contract, the testing of paving brick and block at the plant where the material is made, and the inauguration of a uniform cost accounting system, were among the important issues discussed at the convention of the Eastern Paving Brick Manufacturers Association, which was held in Bradford, Pa., February 5, 6 and 7.

The first day's session was devoted to reports of the various officers and the election of those who were to serve during the coming year. C. E. Foster, of Bradford, Pa., was re-elected president; J. B. Hammond, of Bolivar, Pa., first vice-president; C. A. Young, of Pittsburgh, Pa., second vice-president; G. W. Lenkerd, of Indiana, Pa., secretary, and C. P. Mayer, of Bridgeville, Pa., treasurer.

A Good Roads Meeting was held in the evening, at the Bradford Armory, at which Spencer M. DeGolier, mayor of the city, presided. He introduced Hon. H. R. Habgood, the opening speaker; Mr. Habgood stated that the matter of good roads was only second in importance to good schools.

Will P. Blair of Cleveland, O., secretary of the National Paving Brick Manufacturers' Association, was the next speaker. Mr. Blair is a national figure in the brick business and one of the country's foremost advocates of the good roads movement. He pointed out to his auditors that there were many obstructions in the path of the supporters of the project and that a lot of hard and unremitting effort would have to be expended in order to win out in the end. He reported on the work which has been done in his own state of Ohio and displayed a thorough knowledge of the proper methods of constructing and maintaining roads. The speaker contended that the prime essentials for the success of the project and also in construction were honesty, integrity and common sense.

E. J. Herman, state organizer of the Pennsylvania Good Roads Association, read a carefully prepared paper and made a plea for every one to line up on the side of the project for establishing and maintaining good roads.

At the opening of the second day's session, C. P. Mayer, of Bridgeville, Pa., read a paper on the Uniform Contract, and, in the discussion which followed, Will P. Blair, secretary of the National Paving Brick Manufacturers' Association made the following statement:

> "One or two points in regard to the formal wording of the contract that relates to local conditions, in one place and another. The National Association in their meeting, would not adopt those conditions because they are obliged to be changed slightly in regard to the different states to which they might be shipping, but decided to adopt as their rule of the contract, paragraphs 4-5-6-7-8 and 9th. These clauses contain the essential and uniform elements. You will have to change locally to suit conditions and places, but the above are the essential paragraphs. These paragraphs were first adopted by the Eastern Ohio Manufacturers Association, and they have had experience of something like two years in the use of this and there is not one that would go back to anything else. This has extended now to Illinois and Indiana and to a large number all over the country, and after things were thrashed up one side and down the other, no one could urge any objection to the satisfaction of the contract."

G. W. Lenkerd, secretary, stated that in his opinion this association should adopt the clauses Mr. Blair mentioned, namely, 4, 5, 6, 7, 8, and 9 possibly, and as to the balance of the wording, eash individual manufacturer can have his contract modified to suit his own needs and his market. This was put in the form of a motion and carried.

Following an address by M. E. Gregory, of Corning, N. Y., on the Methods of Testing and Inspection Paving Brick, it was recommended that the Eastern Paving Brick Manufacturers' Association adopt a similar ruling to that which the National Paving Brick Manufacturers' Association was endeavoring to put in force—namely, that on all order of 100,000 block or more, inspection be made at the plant, by a competent inspector appointed by the municipality or other authority under which the street improvement was to be made, but that on smaller shipments, manufacturers should ship only such material as they were certain would be fully up to specifications.

A paper on Cost Accounting was read by G. W. Lenkerd, secretary of the association and outlined the necessity of the adoption of a proper system, in order that manufacturers should be able to determine the cost of each manufacturing step, and so be able to cut costs and stop waste, as well as putting them in a position to make intelligent quotations, based on actual costs, plus fair profit, rather than upon prices that they heard were made by competitors. After some discussion, G. W. Greenwood, M. E. Gregory and G. W. Lenkerd were appointed a committee to devise and draft a cost accounting system applicable to all forms of paving brick manufacture and to submit it to the board of directors of the association.

Other excellent papers were read by E. F. Bannon, city engineer of Hornell, N. Y., and by J. B. Hammond, of Bolivar, Pa. A banquet at the Hotel Holley closed the convention, which was one of the largest ever held in Bradford, and one of the most enthusiastic paving brick meetings ever held in this country.

Parmelee New President American Ceramic Society

GREATER publicity for clay products, the establishment of student branches at regularly enrolled educational institutions and of "local sections" of the society, and an unusually interesting list of papers, marked the annual meeting of the American Ceramic Society, held at Wheeling, W. Va., Feb. 24-27.

Cullen W. Parmelee, B. Sc., Director, Department Clayworking and Ceramics, Rutgers College, New Brunswick, N. J., was elected president; Dwight T. Farnham, A. B., Asst. Gen. Mgr., Denny-Renton Clay and Coal Company, Seattle, Wash., vice-president; Edward Orton, Jr., E. M., Professor of Ceramic Engineering, Ohio State University, Columbus, Ohio, secretary; Hereford Hope, of the Mayer Pottery Company, Ltd., of Beaver Falls, Pa., treasurer. George H. Brown, Cr. E., Assistant Ceramic Chemist, Bureau of Standards, Pittsburgh, Pa., was named as the new member of the board of trustees.

The retiring president, Ellis Lovejoy, E. M., of Columbus, Ohio, in presenting the annual presidential address, gave a review of the progress that had been made by the clay industry, as compared to the advance of cement and allied industries, the importance of advertising and of co-operation being strongly emphasized. He presented charts showing that the number of clay plants was diminishing, with no decrease in the amount or value of the output, which he said indicated that the smaller plants were being very gradually eliminated and business concentrated in the larger ones.

He contended that the clayworking industry ranked ninth, from the point of the value of its products, in the industries of the Nation, but that it did not command a financial respect commensurate with its relative importance. "The clayworker is too timid and conservaive in his advertising," he said, "and even though every one knows that clay products have been used since prehistoric times, and knows that a 'brick is a brick' and what it is good for, the self-satisfied attitude assumed by the clayworker is not justified. Taking the position that the modern builder understands that burned clay is the best structural material, and that this fact needs but little publicity, he ignores the pressure that is being brought to bear upon the buying public by the exponents of materials that are offered as satisfactory substitutes." Mr. Lovejoy stated that a decided stirring-up was needed among clayworkers, for, while we may be said to be profiting by somewhat of a "brick boom," it is only a very feeble one.

Another, and particularly valuable side of Mr. Lovejoy's address was the statement that accurate cost data would be of immense assistance to the clayworking industry, that it should be compiled and given the widest publicity, and would have the effect of maintaining prices, and of deterring ill-advised ventures.

The students of the Ceramic Department of the Ohio State University petitioned to establish a student branch of the American Ceramic Society, pointing out that good precedent had been set by many other societies of similar nature. The board of trustees of the American Ceramic Society recommended that the petition be recognized and an amendment to the constitution will be made to permit of the establishment of such student branches. Charters will be granted only to regularly enrolled institutions.

A discussion relative to the establishment of "local sections" of the Society followed, and Francis W. Walker, Ph. G., of Beaver Falls, Pa., outlined a plan, and pointed to the many advantages that would accrue to the Society as well as to the clayworking craft. A motion that such "local sections" be established was carried.

Arthur S. Watts, Professor of Ceramic Engineering at the Ohio State University started a lively discussion by recommending that the Society compile a book on "Ceramic Nomenclature" and giving standard definition of terms used in the ceramic industry, such as engobes, glazes, slips, vitrification, etc. While the opinions that were given voiced the great need of a dictionary of this character, there seemd to be a wide divergence of thought as to the magnitude of the task. A committee was appointed, however, to compile an authoritative nomenclature of methods, materials, and terms used in connection with ceramics—the committee to report at the next annual meeting.

The regular programme, as outlined in the last issue of "Brick and Clay Record" was followed, and the papers were received with great interest. The printed report of the transactions will be awaited with impatence by the host of clayworkers who were unable to be at the meeting.

Ninety-eight members and guests registered at the meeting, an unexpectedly large number, considering the weather conditions.

How One Paving Contractor Secured a Contract

An interesting experiment has been tried in Louisville, Ky., by a contractor whose bid on street paving included the removal of the old pavement, which, although brick, had been worn to a thinness that made it uneven and unsightly. He found a way of reducing some of his cost, and so secured a contract that was highly profitable.

THE careful contractor necessarily figures into his bid on any piece of work all of the material that may be salvaged from what he must remove, as well as any use to which he may be able to put old or excavated material; and his handling of this item may not infrequently result in his bid being a notch lower than that of the rest of those who are after the job. The value of the brick removed from an old street, if these are to belong to the contractor constructing the new, may be such that to him the cost of the job will be less than to other bidders; and, where this is the case, he will, of course, act accordingly.

In a recent instance, however, another angle was given to the same general proposition—the removal of an old brick street, and its repaving—by a veteran contractor who had looked the ground over carefully. All who had inspected the street, with a view to determining the value of the brick, had come to conclusion that they were too worn to be of any particular value, and that they would have to be hauled away and dumped after removal. They had been down for a number of years in that particular place, and the heavy traffic had reduced them to such thinness that it was almost hopeless to think of getting anything for them for building use.

This contractor, in view of this state of affairs, conceived the possibility of accomplishing a saving in another direction. He agreed with the consensus of opinion with reference to the general worthlessness of the old brick; but he saw in this fact an opportunity to shade his bid in spite of it, or, rather, because, of it, and still make a good profit, although he could not make his estimate as low as in cases where the brick could be disposed of at a good price. Still, the other fellows were in the same fix, and he had a notion that they would be above his bid when it came to a showdown, with his new idea figured in.

And so it proved; he landed the job for the removal of a mile or so of exceedingly worn brick paving, and the construction of a new street on the same area. So he proceeded to test out his new idea. This was nothing more nor less than to use in the removal of the brick the same efficient tool which he usually employed in the tearing up of macadam and of concrete roads—the "rooter" plow—with a tongue, or footing, instead of the regular blade; a magnified and power-driven pick-point, in short.

He figured, and logically enough, too, that an instrument which was capable, with the proper application of power, of making its way through six inches of old and well-settled concrete base work, or of tearing up into its original components a heavy and stony macadam highway, ought to be able to handle thin brick worn to a two-inch thinness without much trouble; and the test proved that he was pretty nearly right.

The Steam Roller Method of Tearing Up a Brick Pavement

According to his practice in handling heavy work with his "rooter," he hitched it by a chain to a 10-ton steam roller which belonged to him; and while, in a sense, this might be charged as a sinful waste of power, in that the engine was compelled to pull the heavy roller, which was not essential to the work, as well as the plow itself, it was a decided economy in another sense. This was due to the fact that he owned the roller, and did not own a traction engine of any other description; and it was of course not worth while to purchase one for that single purpose.

It was found that the plow, with the roller as its motive power, readily tore up half a block of the old brick street in two or three hours, while under the old method, using groups of four men with picks and crowbars at frequent intervals, a large force took half a day for the same amount of work. The tearing up of the old brick and their removal was thus accomplished with much greater speed, and with a much smaller force, than where the brick were removed by hand and sold or used by the contractor as second-hand brick.

In some municipalities the use of broken paving brick is permitted in the same manner as broken stone, in the construction of the concrete or stone base for roads and streets. In the city referred to, in fact, this kind of material was formerly allowed and specified, but it was found that abuses had crept in in the shape of the use by some unscrupulous contractors of soft brick taken from old sidewalks and buildings, which, of course, were entirely unsuitable for the heavy traffic of highways.

Where this use is permitted, however, the contractor might find it profitable to handle the removal of old brick paving in the manner described, disposing of the worthless brick—that is, worthless as brick—for use as crushed stone, either on city streets or country roads, where they would probably give entire satisfaction, if the brick were sufficiently hard burned to have passed the preliminary tests to which paving brick are usually subjected.

Raise Open Price Standard

WITH a new state organization launched and declaring for the open price policy standard, another state reorganizing to adapt itself to the same system, the proposed formation of a Central West body, and one of the major clayworking associations preparing to readjust its methods and to adopt the same idea, the past two weeks have been unusually important ones in the industry.

The new state association formed was the Kansas Clay Manufacturers' Association. It saw its birth at Lawrence, Feb. 16 and 17, and its formation will mark a distinct epoch in the organization of the clay product industry as its constitution is constructed along modern lines and in keeping with the advanced thought of the day.

The state association that reorganized during the same period was the Iowa Clay Manufacturers' Association. The regular monthly meeting was held Feb. 17 at Des Moines and the open price standard formally adopted and put into motion.

The major organization that has come to the conclusion that the Modern Competition was the only way to solve the problems that confront the producer was the Western Paving Brick Manufacturers' Association. President Nesch and some of the members of his organization had a conference with Editor Wells of "Brick and Clay Record" at Kansas City, Mo., and decided that the question be decided at the monthly meeting scheduled to be held this month. The constitution, under which the Kansas clayworkers organized, was analyzed and pronounced just the thing for the paving brick manufacturers and it is probable that it will be, in the main, adopted.

The call for a Central West organization to be formed along the lines of the New Competition is embodied in the open letter sent out by the Illinois Clay Manufacturers' Association asking for clayworkers in Iowa, Minnesota, Indiana and Wisconsin to meet in Chicago March 19 for the purpose of forming an organization that will have the open price policy as its standard.

There are other clayworking organizations—some national in importance, that are considering the open price policy and before the year 1914 has passed into history it is probable that practically the entire industry will be working under the system.

Plan Middle West Clay Association

CLAYWORKERS from four states will meet in Chicago March 19 to discuss the advisability of forming a Central West association under the standard of the open price policy. The meeting will be held in the LaSalle Hotel and will be called to order at 10 o'clock in the morning. Prominent speakers will address the clayworkers, explaining the merits of the new policy and going into detail as to the purposes of the proposed organization.

Face brick manufacturers and dealers, common brick manufacturers, tile makers, sewer pipe manufacturers, the manufacturers of hollow block—in fact representatives from every branch of the industry, will be represented at the meeting and there is every indication that there will be a large attendance.

Secretary Bassler of the Society of Vitrified Clay Manufacturers (sewer pipe manufacturers) will be one of the speakers and will tell how his organization, which has been operating under the principles of the open price for the past year, has profited by the New Competition.

It is probable, also, that Arthur Jerome Eddy will be a guest of the meeting and make an address. Mr. Eddy is the author of "The New Competition," which treats on the open price policy and is looked upon as the father of the idea.

Iverson C. Wells, managing editor of "Brick and Clay Record," who has devoted considerable time to the promotion of the open price standard among clayworkers and who has interested several of the associations in adopting the principles, also will address the convention.

It is proposed to form a new organization outside of the present state organizations in the four states mentioned and which will not conflict in any way with the operations of these other bodies. All manufacturers of burned clay products will be eligible to membership.

Some central point, Chicago probably, will be selected for headquarters and a paid secretary will be employed, according to the tentative plans formed by the committee which has the investigating work in hand.

This secretary will have charge of several organizations, as a matter of fact—as many as there are industries represented. In other words, each industry will operate under the open price principle, independently of any other industry. The lines will be industrial rather than geographical.

The Central West association, therefore, will be, as a matter of fact, a group of associations, but with one executive in charge who will see to the dissemination of reports and statistics in accordance with the principles of the open price standard.

The idea of this plan is to minimize the cost of operation. One secretary or manager will be able to do the work just as well, or in fact, better, for the entire group of manufacturers, it being merely a matter of increasing the clerical force to take care of the routine.

D. C. Heager, president of the Illinois Clay Manufacturers' Association, is chairman of the organization committee and has associated with him, J. W. Buckley, fo Aledo, Ill., and Editor Wells of "Brick and Clay Record." This committee, assisted by Secretary Huckins of the Illinois association, has had several conferences and will have made a thorough investigation of the field and be in a position to suggest a well-defined program of organization at the meeting.

The Chicago Face Brick Association has announced to this committee that it will enter into the new association as a body, which gives considerable encouragement to those that are interested in seeing the movement developed into a successful and perfect association.

A number of the largest plant owners in the four states have signified their intention of joining the association, if one be formed, and there is every evidence of a great interest throughout the territory in view.

The idea for the Central West organization grew out of the decision of the Illinois association to take up the open price standard at the annual convention held a few weeks ago. A meeting of the association was called for the March date, and after a preliminary investigation had been made by the special committee appointed, it was decided to invite other states to join in the movement. It may be that the Illinois association will find it more practicable to form an organization distinctly its own, but this depends entirely upon the attitude of the representatives present from the other states.

Kansans Launch New State Body

KANSAS clayworkers have declared for the open price policy. The declaration was made at the launching of a new state association at Lawrence, Kans., Feb. 16 and 17. A constitution was adopted embodying this and other new thoughts and the new organization started off with every promise of becoming one of the most successful state associations in the field.

Editor Wells of this journal was the guest of honor at the meeting and assisted in the formation of the new association. He delivered an address on the opening day on the subject of organization and explained the merits of the open price policy.

Among the delegates in attendance were brickmakers, tile manufacturers and other clayworkers from every section of Kansas and considerable enthusiasm was shown in the campaign mapped out to place burned clay material before the ultimate consumer in a more aggressive way than has been the custom in the past.

At the opening session a special committee on organization, composed of Prof. Haworth, C. A. Noll of Wichita, and J. J. Amos, of Humboldt, with Editor Wells, acting in an advisory capacity, reported the permanent organization scheme adopted.

The plan offered a constitution and by-laws which are most comprehensive in nature and follow the same revolutionary features that have characterized the business and industrial trend of the Nation during the past year.

The new association is to hold annual meetings at which note ceramic experts from all over the United States will be invited to make addresses and read papers of a technical nature, in an effort to solve some of the difficult problems of manufacture. Members also will be asked to participate in the program, thus adding the practical to the theoretical side of manufacturing problems.

Chancellor Strong of Kansas University, in an address before the association declared that Kansas offers a great opportunity to the clayworker and abounds in the finest of shales and clays in a great variety of qualities and textures, very few of which have been developed even to a limited extent.

Following the organization of the association a brief program was observed, several very interesting addresses being made.

Professor Haworth talked on the manufacture of hollow block, C. A. Noll on the value of organization, J. J. Amos of the relationship of the manufacturer and the jobber, Prof. Goldsmith on the architect and the brickmaker, Prof. Miller on the industrial possibilities of the central west and Editor Wells on publicity as a method of creating a local demand.

The officers elected to serve the first year were as follows: Erasmus Haworth, Lawrence, president; J. N. Strickler, Cherryvale, vice president; Paul Teetor, Lawrence, recording secretary; C. A. Noll, Wichita, corresponding secretary; J. J. Amos, Humboldt, treasurer. Robert Nesch, of Kansas, and the officers mentioned above constitute the executive committee.

PAUL TEETOR,
First Secretary New Kansas Association.

The first regular monthly writing will be held at Coffeyville, Kans., March 18, at which time it is expected clayworkers from all over the state will be in attendance.

Western Canada Offers Big Opportunity.

From reports made by reliable authorities, Western Canada, particularly Saskatchewan, offers a golden opportunity for the sewer-pipe and drain-tile manufacturer. With little local competition, a country that is growing like magic, cities rising from the plains, it would seem, overnight, an established plant will have clear sailing for some time, and, being ahead of the plants that come after, can build a trade that will be an asset for many years. G. H. Bugenhagen, of Saskatoon, Sask., a recent visitor to the editorial rooms of "Brick and Clay Record" is enthusiastic over the many chances that he sees in that section, and bemoans the fact that American capital is not at work already, developing an industry that promises such rich returns. He says that he has options on property where the clay is just right for glazed pipe, where coal fields adjoin, where labor conditions are ideal, transportation excellent and demand only partly taken care of by material that has to come in from "the States" and paying a high duty. He says he will be glad to hear from anyone who might be interested and, as he is now on his way home, can be reached by mail anytime after March 1.

Brick Dealer Heads National Builders

EDWARD K. CORMACK,
President National Builders' Supply Assn.

WITH the election of E. K. Cormack, a Chicago face brick dealer, as president, and the establishment of permanent headquarters and a paid secretary in Chicago, the Fifteenth Annual Convention of the National Builders' Supply Association, held in this city Feb. 17 and 18, took definite steps toward a more active work along progressive lines.

Mr. Cormack, who is general manager of the Chicago office of the Wisconsin Lime & Cement Co., dealers in brick and building supplies, sounded the keynote of the convention in an address he delivered and in which he advocated national legislation that would place the manufacturer and retailer shoulder to shoulder with labor, on the question of product and price.

"The remedy I propose," said Mr. Cormack, "is that the Government shall permit us to smoke the pipe of price maintenance under its careful supervision."

"Trade organizations are all right," said Mr. McCormack, in another part of his address, "and it is fine to see the lion and the lamb sit down and lunch together instead of off one another, but if goodfellowship and efficiency is all they are allowed to talk about, there will not be any lamb pretty soon."

The address was pronounced most startling in nature, advocating, as it did, a revolutionary change in the entire scheme of national legislation, as regards corporations. "You are fifty years ahead of the times," one delegate afterwards remarked, "but who knows but what we may see your principles actually put into practice before long? We are moving ahead in all matters at a rapid pace and we may overtake you shortly." Mr. Cormack's subject was "Trade Association Principles in Our Business." He said in part:

I have attended a great many conventions of one kind and another, and have painfully listened to hardened criminals tell of the crimes and evils that afflicted the building supply business. I have listened to addresses on the ethics of business, price cutting versus salesmanship, good fellowship and get-together ideas, and these addresses and talks have been delivered by some of the worst offenders of the thing the speaker condemned.

The only way I could account for the contradiction between the speaker's words and actions, was by recognizing that even in the worst of us there is a spark of good, and the spirit of the man was willing to do what is right, but his flesh was weak, and consequently his efforts to reform others fell flat. You know it has oft-times been said that the devil can quote scripture and reprove sin, but in no case do we find his preaching of the gospel converting many sinners.

Trade organizations are all right, and it is a fine thing to see the lion and the lamb sit down and lunch together instead of off one another, but if good fellowship and efficiency is all they are allowed to talk about, there will pretty soon not be any lamb.

As it is at present, the members of trade organizations act a good deal like a couple of Scottish elders meeting in front of the country church on the Sabbath morning. "Tammas," says the first one, "If it wasna' the Sabbath, how much would you take for the Jersey calf you have?" "Jock," replies Tammas, "If it werena' the Sabbath I would ask twa pound five." "Tammas, all I have to say—if it wasna' the Sabbath I would give you twa pound." "Ay, mon," was the reply, "and if it werena' the Sabbath I wad sae I'll be over in the morning and bring the calf."

Now, we all know how in the trade association meetings, Mr. Merchant says, "Well, you fellows can do what you like, but my price is so and so." But if you take him at his word and do what you like, and your likes and dislikes do not coincide with his, then the merry war is on.

Now, then, what is the remedy? If as a boy, your father had allowed you to sit down with him and smoke that first pipe or cigar, you would have had no desire or incentive to sneak out behind the barn and carefully extract from the hiding place the pipe you dreaded, yet thought you ought to indulge in, simply because it was forbidden fruit.

And the remedy I propose is that the government shall sit down with us, and permit us to smoke the pipe of price maintenance under its careful supervision. This idea may seem treacherous to our present code of morals as propounded by the law of the land, and I fancy I hear some one say, "Why this is socialism that Cormack is preaching." You can call it anything you like. Many a good cause has been damned and retarded by a bad name. As stated, I don't care what "Ism" you call it, I call it common sense, and as such it is.

A long step was taken in this direction when the railroads of the country were compelled to treat all alike, and now the only competition between two parallel lines of railroads, is the competition of service, for our government has officially recognized that the competition of price is an evil thing and must be stamped out.

Our trade unions have something more than a gentleman's agreement in regard to the price maintenance, and woe betide the unfortunate individual, whether he be a member of their union or not, who cuts this price and sells his services for less than the scale adopted by and agreed to in the union councils.

Our government has also recognized the justice of this theory by going on record that the government funds must not be used to prosecute the union for throttling competition and maintaining prices. The equity of our contention that we should be allowed to establish and maintain a minimum price for our merchandise is borne out by the consideration of the fact that the value of our wares chiefly consists of the amount paid to the two classes already cited.

The building supply business is a business of tonnage, the value of its material consisting almost exclusively of labor and freight—labor at the factory, freight to bring it to the distributing center, and labor at the distributing center delivering it to the building site. Deduct from your selling price what this freight and labor amounts to, and you will find a very small margin left.

Now, then, it has already been stated that the government compels the removal of price competition from the railroads, and permits the removal of price competition from the union. Is there any justice or equity in the argument that the building supply men of a community should not be permitted to get together and say, "Our freight and labor amounts to so much; it costs us so much to do business, and therefore the minimum price at which an article shall be sold in this territory shall be established and maintained"?

There would be no objection to a government official approving of the price so established, even as the Interstate Commerce Commission approves of the railroad rates. But what do we want, and what we must have, is the right to contract, one with the other, towards the keeping and maintaining of the price so established—a contract carrying with it suitable penalties for its violation—penalties which can be enforced in the courts.

I would not go the length of making it compulsory that the merchant in the same class should be compelled to join the trade organization, but I would make it compulsory that having once joined, they stay in.

Who benefits from the cut-throat competition? No one. Who benefits from the constant fluctuating of prices? No one. What you as dealers, and what your customers as contractors are interested in, is in seeing that no one buys for less than you do. You demand being placed in this respect on an equal footing. You are willing and eager to compete in regard to the things that you control, such as labor-saving movements, greater efficiency, etc., but your raw material and the things you do not control must come to you on equal terms.

This is not alone the fight of the manufacturer and the dealer. It is the fight of his banker and every one interested in the prosperity of an industry. Capital and Labor are not attracted to any industry that is in the tumult of price cutting and its attendant personal hatred. And talking about capital—where can you find a better illustration of trade union principles than in the rules under which the associated banks of a clearing house work.

We have admitted the evil. We assert the trade union idea, as applied to business, is the remedy. How are we to get it?

An editorial in a recent weekly made this statement:

"All legislation is political first and personal second. The men who make the laws primarily for their own party and political advantage, and secondarily for whatever advantage may slop over for the country."

We must make our lawmakers see that it is for their party and personal advantage that competition be transformed from sharp and unscrupulous business methods to the basis of quality, merit and service.

I think there are enough people in this country thinking as I do on these lines, to demand that our ideas be given an honest trial. Who of us today would wish to go back to old days of railroad rebates, or in other words, shop with the railroads as our customers now shop with us?

My only desire in bringing this subject to your attention is that you may think about it, talk about it, and thus create the sentiment for it that will make it the law of the land, and I can conceive of no better work this Association can do than to throw its influence behind a movement of this kind. I firmly believe that if the matter is honestly and intelligently presented to the trade unions of the country, they would be one with us in endeavoring to secure the Federal Trade Commission.

Gentlemen—this thought of co-operation, not competition, is in the air, and the time is ripe for putting on our statute books a law permitting price maintenance and compelling the complete stoppage of discrimination between buyers. A movement such as this would make impossible the organizing of large and top-heavy corporations, which are slowly but surely grinding the life out of the little fellow. The little fellow would have all the inducement in the world to embark in business, knowing that his large and gigantic competitors would not be allowed to ruin him by making a cut-throat price, and the small merchant, by strict attention to the efficiency of his business, would be able to compete, and successfully compete in the competition of service, because all his faculties could be centered on that one thing instead of as it at present is, centered on the rise or fall of the market.

The election of Mr. Cormack as president, followed his indorsement by the nominating committee and was unanimous. Mr. Cormack, however, was disposed to decline the honor, and when he was called to take the chair said:

> I would hardly be human if I did not feel esteem and appreciation in your electing me at the head of such an organization as the N. B. S. A. is—and undoubtedly will grow to be. I cannot truthfully say that this comes altogether in the way of a surprise, as several fingers have been pointing it out to me for the last twenty-four hours. I tried to make it plain as possible to those gentlemen who won my confidence why it was not advisable that I be elected to this position. I do not wish to be discourteous or anything of the kind, and I think I tried to explain to you how deeply I feel the touch of confidence, but I do feel, gentlemen, that this step should not be signed and sealed without at least giving me a few hours to think it over, and if that would be acceptable (turning to the chair), Mr. Warner, I would like to leave the matter in that way.

Mr. Warner, the retiring president, replied that there was such a very strong feeling for Mr. Cormack, that he hoped he would accept the position for at least the next year.

"I think we will have to leave the matter in that way, if there is any little question in your mind."

Later Mr. Cormack announced that inasmuch as a number of his friends had put the matter up to him as a personal duty, he had decided to abide by the action of the delegates and he was escorted to the chair. He made a brief address in which he warned the members that by the end of his term the association either would be very much alive, or ready for burial.

Canadians Plan for Publicity for Clay Products

An urgent plea for better publicity for clay products and some showing of a sentiment toward holding subsequent sessions at some time and place other than those selected for the meeting and exhibition of the Corn Growers' Association marked the sessions of the Western Ontario Clay Workers' Association, held at Chatham, Ont., Feb. 4 and 5. A splendid representation of the membership was present, as well as a strong delegation of clayworking machinery men from various parts of the Dominion and the United States.

All of the officers who had served during the past year were reelected unanimously. It was decided that an exhibition of clay products be made in connection with the next exhibition of the Ontario Corn Growers. A motion that the next convention of the Western Ontario Clay Workers' Association be held at Petrolia, Ont., at the same time as that of the Lambton County Corn Growers Association was tabled, but later brought up for discussion and defeated. It was then decided that the time and place of next year's convention be left to the discretion of the officers of the Western Ontario Clay Workers' Association.

The question of an exhibit of clayware being up for discussion, the point of proper financing the project was taken under consideration, as well as the nature of the exhibit. It developed that, since manufacturers of clayworking machinery had contributed liberally to the funds provided for the entertainment of delegates to past and present conventions, they reasonably could be expected to contribute even more liberally to a fund for the exploitation of clay products, which would reach the consumer and so increase the market for the product of their machinery.

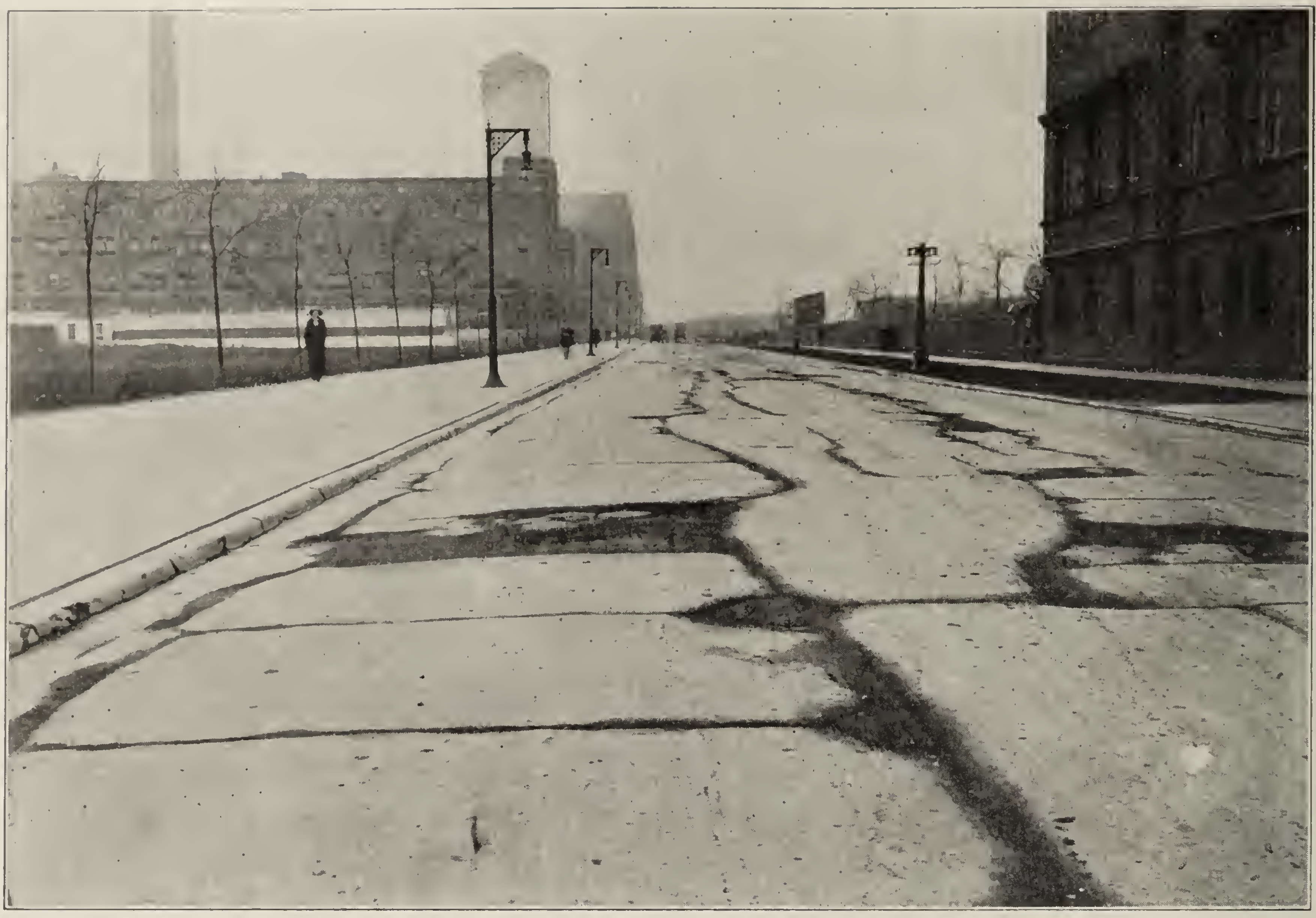
Secretary Wehlann said he would do what he could to induce a subscription that would insure a worthy exhibition, and added that he was in favor of the exhibition being non-competitive—that is, that the members whose products were to be placed on exhibition, were not to try to outdo each other, but to outdo competitive products, such as frame, concrete and gypsum.

An interesting discussion followed the introduction of literature distributed by the cement interests, which were offered by Vice-president Broadwell of Kingsville, Ont. In early December, Mr. Broadwell wrote "Brick and Clay Record," stating that the cement interests were working hard to induce the city council of Kingsville to use cement in the road and street improvement that was pending in that municipality. He asked for printed matter to offset the interest that was being created in favor of concrete, and copies of a reprint from "Brick and Clay Record"—an article on the Wayne County Roads in Michigan—were sent him, together with literature from the National Paving Brick Manufacturers' Association.

This, as Mr. Broadwell afterward wrote "Brick and Clay Record," made such an impression on the city council, that the matter of surfacing the roads was laid over until a thorough investigation of the merits of all paving materials could be made.

A comparison was drawn between the immense amount of newspaper advertising and printed matter distributed by the cement interests, and the amount that was promoted by clay products manufacturers, and an interesting turn was given the discussion by Geo. B. Drennan, of the J. D. Fate Company, of Plymouth, Ohio, who said that manufacturers of clayworking machinery spent a large sum in advertising what they had to sell, and considered their advertising one of their greatest assets.

The convention closed with the thought that manufacturers of brick, sewer-pipe, drain-tile and other clay products must devise some better way than any which had so far presented itself, of letting the public know more about the good qualities of their materials.



Harvard St., Chicago, looking west from Kedzie Avenue. This concrete pavement was laid in 1905 and has been undergoing repairs continually, ever since it was laid.

Concrete Streets in Chicago a Failure

By Irwin Charles Walker

Mr. Walker made a careful photographic record of Chicago's concrete streets, and this is submitted as proof positive that concrete is not a durable pavement.

In view of the wide-spread promotion work and publicity given concrete construction just now, it is well for those interested to take into consideration this evidence, and, as Mr. Walker suggests, make a personal investigation, as first-hand testimony is better than that given by some one who may have an axe to grind.

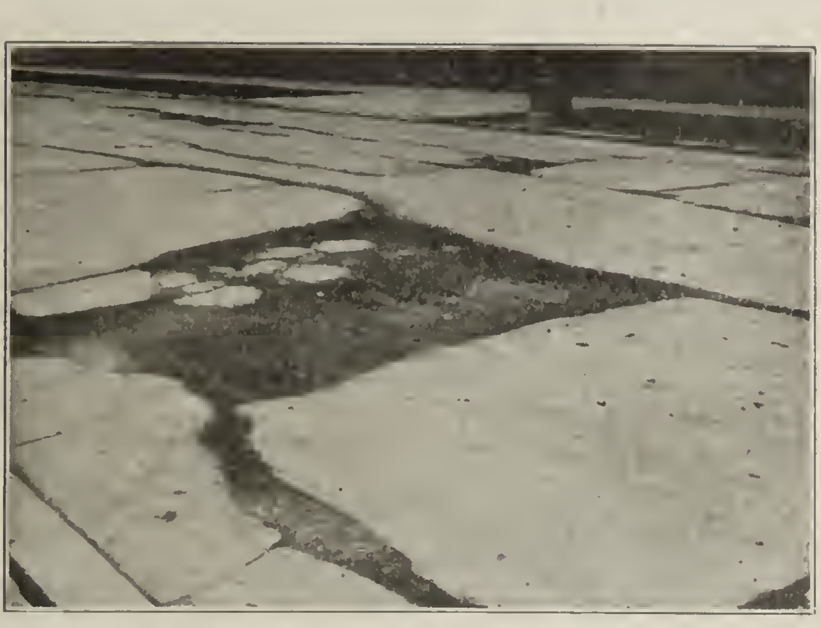
CONCRETE streets in Chicago are a failure. Ten years of practical tests on the boulevards, streets and alleys of the city have proven this, and in no particular case have they complied with the requirements of durability, with which they were supposed to be endowed, when they were foisted upon the public.

Further, in no instance where concrete has been used—even where the so-called "superior" form of construction was employed, has the material stood usage and the action of weather and atmosphere longer than two years (and unsightly cracks that have been patched innumerable times are excluded in this reference), and in many cases the life seldom extended over the period of a year.

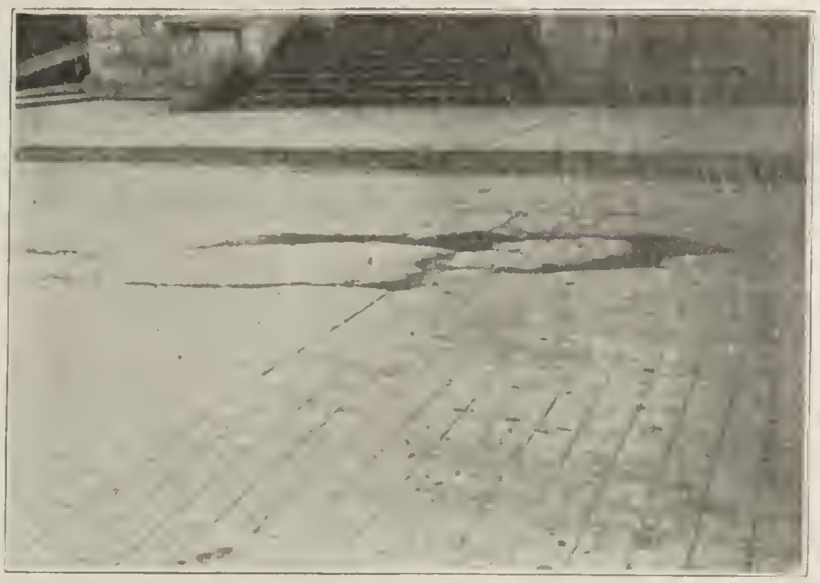
So thoroughly understood is this impracticability of concrete as a paving material in Chicago, that very little of it has been used, and what few yards have been let were laid by private contract in the main, and the year 1913 showed a decided decrease even in this sort of construction.

The history of concrete roads and streets in Chicago is the same as that of any city or locality where concrete has been employed.

The first streets laid failed rapidly. The advocates of con-



Concrete pavement in Harvard St., in front of Sears-Roebuck's Y. M. C. A. Laid in 1905 *and repaired from time to time, until the present.*



Concrete pavement alongside the Sears-Roebuck Administration building. This pavement has been repaired many times since it was originally laid.

crete explained this by the assertion that the work was done when "little or nothing was known about concrete."

The next stage in the promotion of concrete streets brought forth more failures. This time it was said that "concrete streets were then in an experimental stage," and that "now that we know how, concrete will outlast or outwear any other known material."

Judging from the condition of the streets that have been laid within the last two or three years, concrete is still in the "experimental" stage.

I have made a careful investigation of the concrete streets in Chicago—not overlooking any that are recorded in the files of the Board of Local Improvement and refer to the list that accompanies this article, inviting everyone interested in learning the absolute truth to make a personal investigation, rather than to take my word for it, or that of the material men themselves.

I had a photographer with me on this investigation and submit actual photographs which have not been "doctored" nor changed in any way. These I submit as proof of the statements I have made and intend to make.

My first inspection was on the west side, in Chicago. The streets surrounding the immense plant and buildings of the Sears-Roebuck Company are all concrete and were laid under the most "approved form of construction."

As a fact, A. F. Wright, chief engineer of the big mail-order house, and W. M. Hasberg, building superintendent for the same concern, had direct supervision of this work. They were assisted and advised by the manufacturer of the material (one of the cement plants) as to the methods of mixture and application and as to the specifications.

These streets were to be "ideally constructed" and are said to represent the highest type of concrete construction known at the time the pavement was laid, or, for the matter, since.

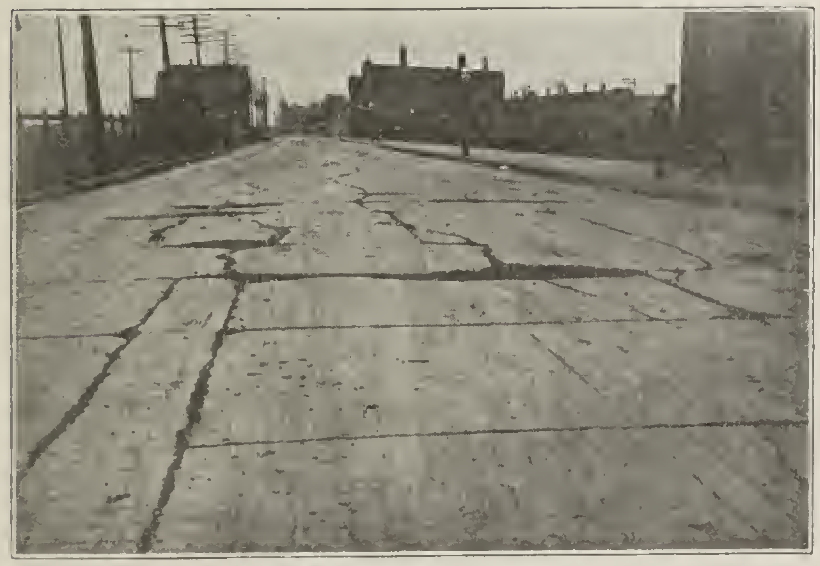
According to Mr. Wright and to Mr. Hasberg, the streets began to crack within the first year. These cracks were not confined to longitudal or transverse fractures, but were consistently both.

As the streets began to "go," efforts were made to save them—the usual procedure, as is evidenced by the immense amount of work done on the famous Wayne County (Michigan) highways.

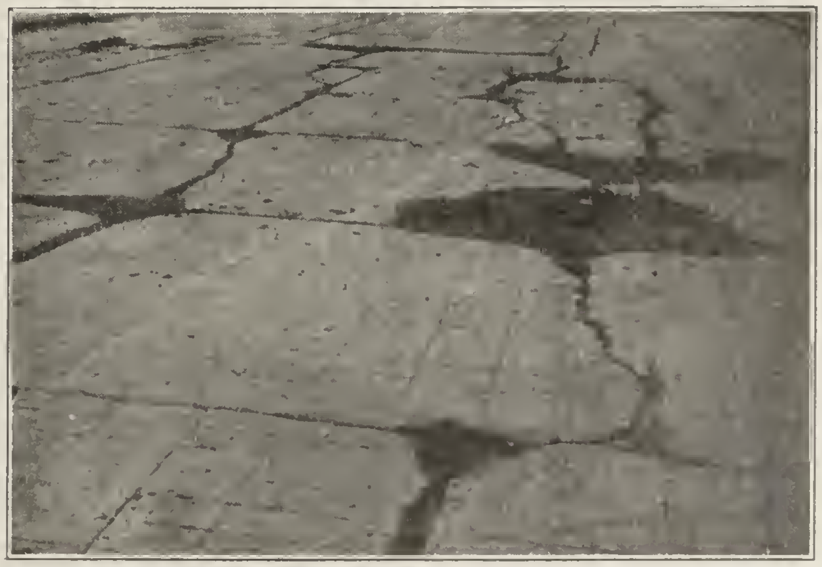
"We used all sorts of material to patch with," said Mr. Hasberg to the writer, "and, finally, we called in the Master Builders to show us how. We were advised that we had not gone about the matter properly, and were told that the methods and material they employed would place the streets in the same condition they were originally."

Mr. Hasberg smiled as he looked out the window of his office and his eyes rested on the unsightly holes that covered the surface of the streets.

"We finally had to give it up as a hopeless task," he continued. "This past Fall (November, 1913) we have made an



Schlitz Avenue, from 113*th to* 115*th St., Chicago. Laid in* 1905. *This thoroughfare has been subjected to light traffic only.*



Another view of Schlitz Avenue, from 113*th to* 115*th St. This pavement, which was but eight years old, when the photograph was taken, has borne a very light traffic.*

These Concrete Streets

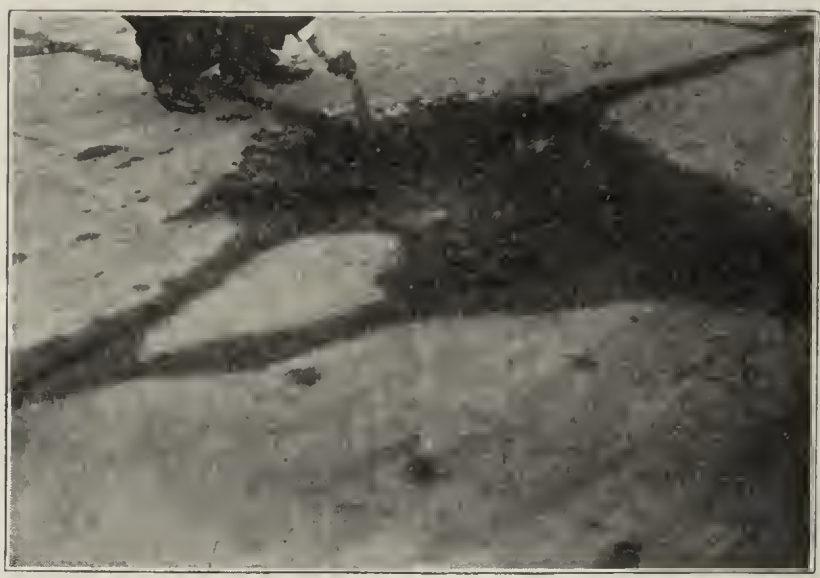
Were Laid in Chicago from 1905 to 1910

INVESTIGATE THEM YOURSELF

As far as the records show the following streets are the only ones paved with concrete in the past ten years:

Schlitz Ave.	From 113th St. to 115th St.	Laid in 1905
Alexander St.	From E. line of Princeton Ave. to 322 ft. West.	Laid in 1906
Congress St.	From Clinton St. to 100 ft. West.	Laid in 1906
Randolph St.	From St. Paul Viaduct to alley East Canal St. Repaved with Granite Block.	Laid in 1906
20th Place	From 41st Ave. to 42nd Ave.	Laid in 1906
21st Place	From 41st Ave. to 42nd Ave.	Laid in 1907
21st Street	From 41st Ave. to 42nd Ave.	Laid in 1907
22nd Street	From 41st Ave. to 42nd Ave.	Laid in 1907
Center Ave.	From S. 43rd St. to Exchange Ave.	Laid in 1908
Emerald Ave.	From 73rd St. to 75th St.	Laid in 1908
Ohio St.	From St. Clair St. to Lake Shore Drive.	Laid in 1908
Union Ave.	From 73rd St. to 74th St.	Laid in 1909
Ontario St.	From St. Clair St. to Lake Shore Drive.	Laid in 1910

Any taxpayers interested in street improvements should have sufficient interest to conduct a personal investigation. If the photographs shown in connection with this article, or any statement made in it, is doubted, the streets mentioned are easy to reach and will prove the author's veracity.



Another Example of Concrete Paving. The hole shown is a fraction more than four inches deep. It can be found on Schlitz Avenue, near 113th St.

attempt to patch up the holes with the idea of bridging over the Winter. Next Spring we expect to tear up all the concrete and replace it with either brick or granite."

When asked what patch was used in this fine work, Mr. Hasberg said it was crushed stone and pitch.

In this connection I wish to quote a letter from Mr. Wright, who wrote under date of September 3, 1913, to an inquirer as to the value of concrete as judged by his own experience. He says:

> In reply to yours of Aug. 29, in reference to concrete pavement, wish to state that our experience with concrete pavement has not been at all satisfactory.
>
> As to the wearing surface I might say that it is fairly good, providing the pavement does not crack, which has been our greatest trouble. In these cases, where a crack appears, it only takes a short time for the wagon wheels to make a very bad rut.
>
> Therefore, I could not recommend concrete pavements from what I have seen at our plant.

I call attention to the pictures of these streets used in this article. These were taken by William Burquest, an amateur photographer, on the morning of Nov. 21, 1913.

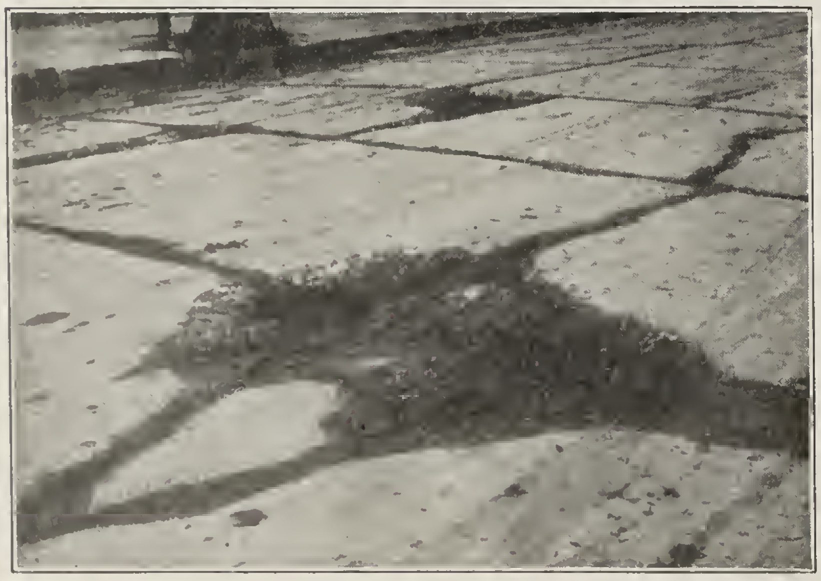
The picture that heads this article is Harvard Street, looking west from Kedzie Avenue. Some of the buildings of Sears-Roebuck loom up in the background. At the immediate right, in the foreground, is the Sears-Roebuck Y. M. C. A. building. This street is a good example of all the others and gives a pretty fair idea of the condition of the concrete, which has been patched annually. Some of the holes are just as bad further down the street as those shown in the view, the photographer selecting this particular point because it took in a view of the company's buildings.

The rest of the pictures, with the explanatory notes underneath, speak for themselves.

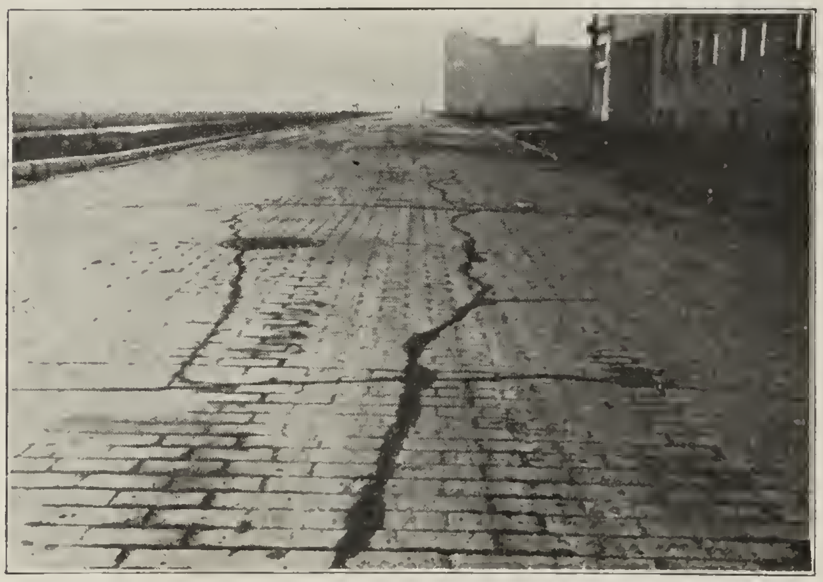
The next concrete streets examined were on the south side. Schlitz Avenue, from 113th to 115th streets, shown in several views, was laid in 1905. The photographs were taken by Mr. Burquest November 21, 1913. There is practically no traffic—or at least heavy traffic—on Schlitz Avenue.

Some of the holes in Schlitz Avenue are three to four inches in depth. Attempts have been made to repair them, but apparently the street has been given up as hopeless, as there is no evidence of recent work.

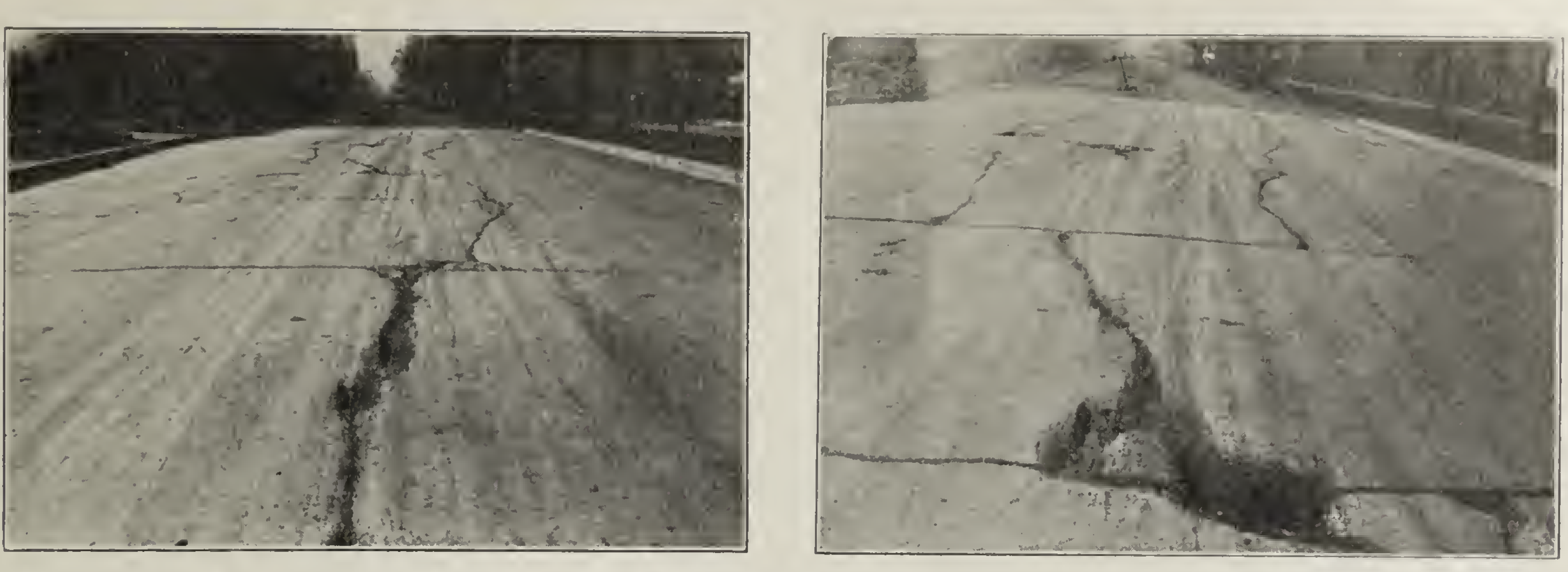
Evans Avenue, looking north from 51st Street, is shown



An Example of Concrete Paving after Eight Years' Wear. This photograph was taken in 1913, and shows part of Schlitz Avenue in the city of Chicago.



Ontario St., from St. Clair St., to Lake Shore Drive, Chicago. This concrete pavement was three years old when the photograph was taken.

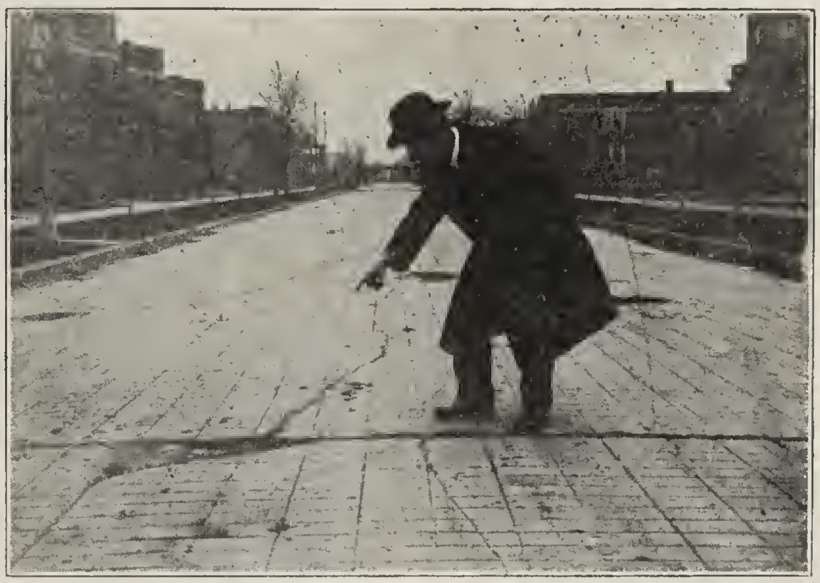


Ohio St., between St. Clair St. and Lake Shore Drive, Chicago. This concrete pavement was laid in 1908, *the photograph being taken in* **1913**.

in one of the illustrations. This is a residence street, and only an occasional delivery wagon or an automobile uses it. It has had little or no heavy usage but is rapidly going to pieces.

The other pictures have ample explanatory notes underneath and need no comment. One of the most convincing proofs of the concrete failure in Chicago is Randolph Street, which is the only concrete thoroughfare which has been given any sort of traffic use. There is only a short strip of this and it is or was located on the west approach of the Randolph Street bridge.

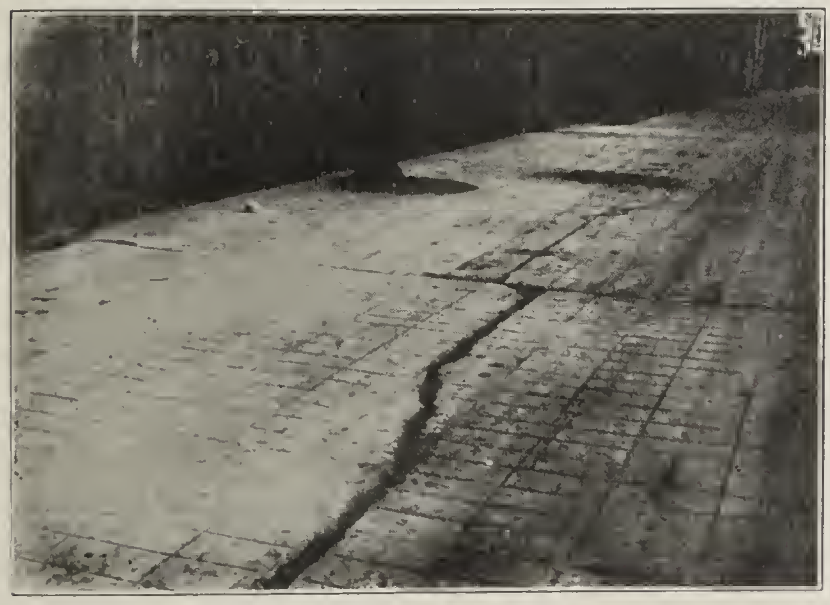
The Rudolph S. Blome Company laid this street in 1905 under a five-year guarantee. It "gave away" so rapidly it kept the Blome Company so busy making repairs and patching that this concern was forced to relay it in 1907. In 1909, the Blome Company, seeing that the case was hopeless, agreed to replace the pavement with granite block before the expiration of the five-year guarantee.



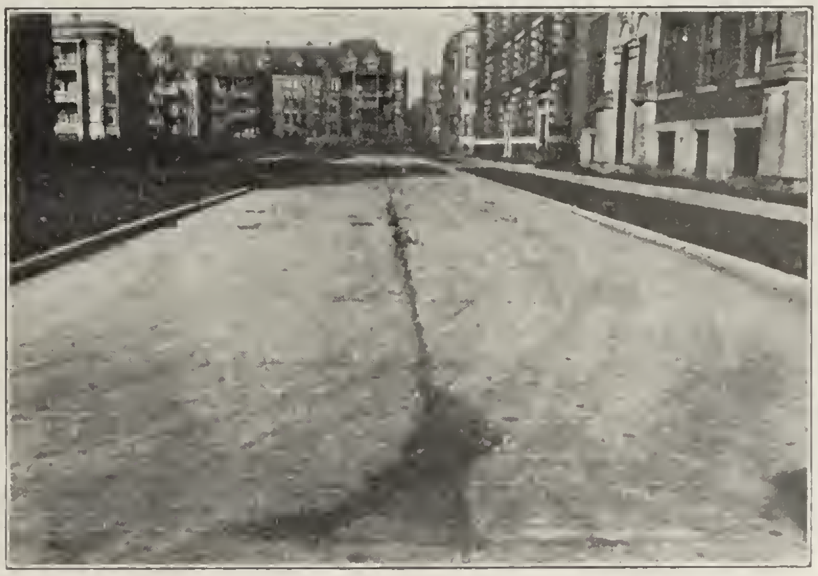
Emerald Ave., from 73rd *to* 75th *St., Chicago. This concrete pavement was laid in* 1908, *the photograph being taken in* 1913. *This is a residence street and the pavement has been subjected to little or no heavy traffic.*

Chicago streets are proof that concrete is still in "the experimental stage," and inasmuch as these pictures cover a period of ten years, there does not seem to be any particular reason for believing that concrete, as a paving material, will ever graduate from the experimental stage its exponents quote so glibly.

Indeed, they seem to have exhausted the stock of the formula that they have been using at different stages of the experimentation, and have gone back to the same specifications as those that were used when the first of Chicago's concrete pavements were laid. These specifications, practically unchanged, are now being offered as "standard" to Evanston and other nearby communities, with a claim that, while comparatively new, they have proven "the only proper way to lay concrete." True, these specifications are better than some other specifications for concrete pavement, but they are not good enough to assure any longer life than the streets laid in 1905 to 1910—streets that everyone, who even listens to the concrete argument, should see, before believing.



Concrete pavement in alley between 45th *and* 46th *St., Drexel Boulevard and Ellis Ave., Chicago. This pavement was four years old when the photograph was taken.*

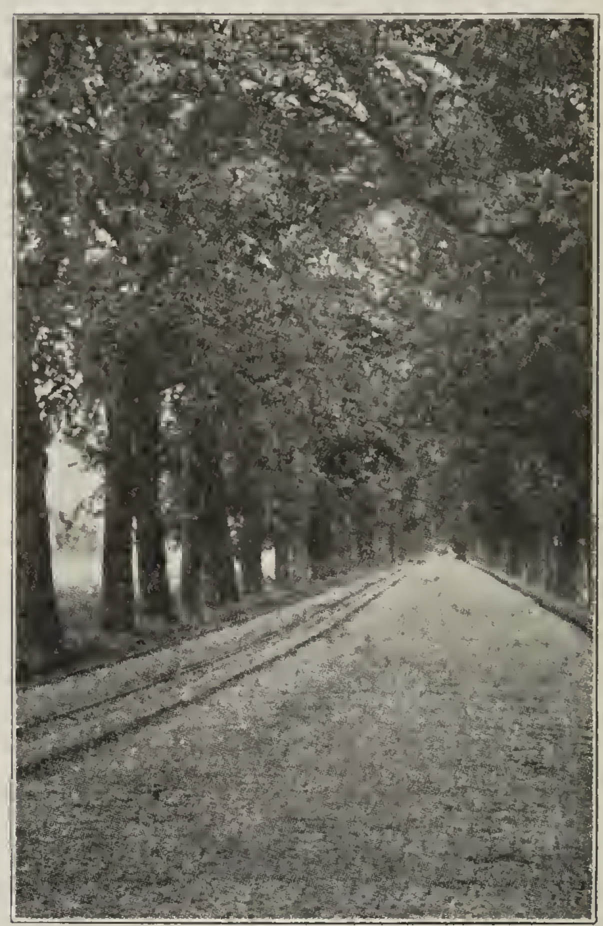


Evans Ave., looking north from 51st *St., Chicago. This concrete pavement is, as can be seen, on an exclusive residence street, and the traffic has been very light.*

In the Limelight

Some Current Happenings that Have An Interest for the Clayworker

A model "Lincoln Highway," built by Miss Jeanette Steel, is on exhibition in Bucyrus, Ohio. The model is paved with brick, as the Lincoln Highway would be, if brick manufacturers were as active, in promoting their material, as are the cement manufacturers. The brick used in the model are made from many different kinds of clay, taken from various points along the proposed route of the Lincoln Highway.



A brick paved road in Holland The pavement was laid more than one hundred years ago and has only been repaired at twenty year intervals.

A familiar scene on the New Orleans Levee. This blind negro fisherman rigs his tackle with little bells, which sound an alarm when a fish takes the bait.

Thermit welding at the Salmen plant at Slidell, La. This is the only plant that is equipped for this work in the South.

Crucible for thermit welding. The preheating torch is shown, the crucible in position, charged with thermit.

Who's Who

Being Somewhat Personal and Reminiscent, with the Clayworker as a Target for the Camera Man and the Editor

Walter F. Jahncke.

A FAMOUS after-dinner speaker once said that the architecture of the average dining hall was ill-advised, since it afforded no easy exit for the orator who had displeased his audience, other than the dangerous way through the maddened crowd. No fear of this besets R. E. Sunderland, of Omaha, Neb., however, for, although what he says may be sharp medicine for his auditors, his manner of saying and the conviction with which he speaks,—not to mention the pleasing rhythm of his voice, makes his progress through the serried ranks of his auditors, an ovation and a triumph. R. E. Sutherland is always convincing, but never more so than when he talks brick and salesmanship, two subjects upon which he has a vast and circumstantial knowledge. His is a famliar figure at all places where brick men gather to devise ways of making and saving.

L. L. Stephenson.

HEADING the Reception Committee at the New Orleans convention, Walter F. Jahncke gave visiting brickmakers some taste of the mettle that has won him so prominent a place in the councils of the buildng material interests of the Crescent City. The Contractors and Dealers Exchange, one of the most active and influential industrial bodies in the South, and a power in New Orleans, recently honored itself by electing him to serve a third successive term as its president.

Walter F. Jahncke is rated as one of the ablest, most far-seeing and capable of New Orlean's younger business men. He is classed as an expert in the general handling of building material and builders' supplies, and has been trained in this line from his early boyhood. He is general manager of Fritz Jahncke, Inc., a firm of long business standing, well known throughout the building supply trade of the country.

PROMINENT among Southern clayworkers, his influence felt throughout the four gulf states, L. L. Stephenson points the way to success to other burners of clay who, despite the successful outcome of enterprises all about them, still complain of poor markets and poor profits—sometimes of poor output.

L. L. Stephenson points the way, his motto being "Progress." Every innovation in brick manufacture has found at least a hearing in L. L. Stephenson's office. Every innovation in selling methods, in cost accounting, in the hundred and one things that go to make up the successful running of a big brick plant, has had his consideration.

His plant is run with electricity, he makes 80,000 face brick daily, and ships them farther than any other Southern brick plant, which says much for their quality and low cost of production.

R. E. Sunderland.

OPERATING a plant at Alexandria, La., a few hours' journey from New Orleans it was only natural that C. N. Adams would be made one of the Southern plant owners whose work it was to entertain delegates to the convention. His picture will, however, be the means of recalling him to friends who could not go to New Orleans —friends in Moundsville, W. Va., where he was born, and in Fayette, Mo., where he started to make brick before he was twenty-one years old.

He went to Alexandria in 1886, and opened several yards at various locations in that city. One of his best plants—one operated by steam power on the bank of the Bayou Rapids, was destroyed by fire in 193, but did not stop his brick making, even at that point, for he had installed new machinery and was making brick on the site of the fire within nine weeks from the date of the disaster.

C. N. Adams.

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

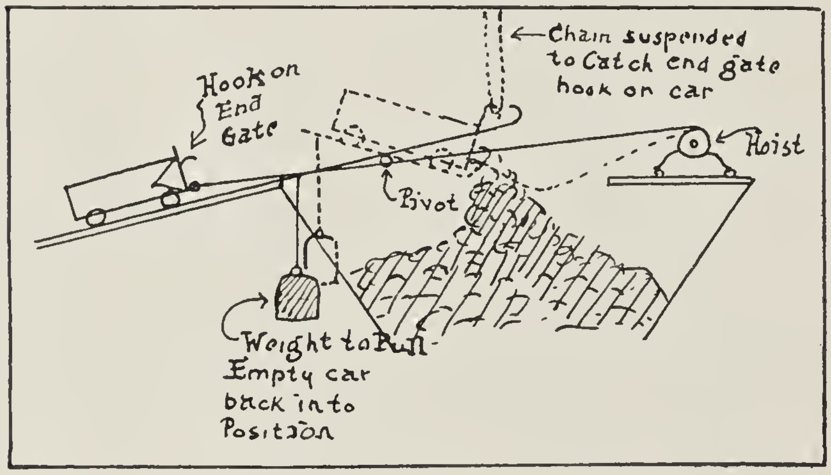
Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

This Idea Wins the First Prize

One dollar is paid for every hint, suggestion or idea submitted by readers and printed in this department. For the best of all that are printed each issue a special prize of $5 is given. The prize idea this issue follows:

An Automatic Dumping Device.

I enclose a sketch showing a system for handling the clay from the pit. The car is all hand made, except the wheels and axles. The front end is for the dump. As the car comes over the break in the incline, slacken the cable and the car runs on the dump by gravity. The dump works on a pivot made of 2-inch shaft. The track with the curved up ends, to hold the car, is made of 2-inch square iron. As the car strikes the dump, a chain suspended from the ceiling catches the hook on the end-gate, holding it stationary while the car goes down and the dirt is emptied. We use heavy weights on the back of this dump so when the car is empty it comes back into position automatically, and is let back down the incline. One man operates this and the pug mill and feeds the press. Our capacity is 100 carloads of drain tile per month.—C. C. Ashcraft, Rockport Drain Tile Co., Rockport, Md.


Chain suspended to Catch end gate hook on car
Hook on End Gate
Hoist
Pivot
Weight to Pull Empty car back into Position

Credits are Allowed for Quick Loading.

Remember that you are entitled to a credit for all cars loaded out in less than the 48 hours allowed by the railroad company. Keep a memorandum of every car placed on your switch, or put at your disposal on the public switch, noting the time it is turned over to you. Note also the day and hour that it is released, by you, to the railroad company. Keep the records on box cars and gondolas separate, as credits on one do not apply to the other. Insist upon a monthly check up, and you **will** find that your credits will offset, to a great degree, demurrage charges on cars that have been placed more than the legal 48 hours, and held up by you, through your inability to load out promptly.—D. W. F.

Fireproofing With Whitewash.

It will be found that wood which is subjected to rather intense heat and liable to ignite, will be less apt to do so if given a good coat of whitewash.—C. S. K.

Preventing Drying Cracks.

To prevent drying cracks in clay products made of fire-clay it is a good plan to mix a small amount of salt (refuse) to the regular mine-run clay—say, two or three handfuls per ton of clay.—D. W. J.

Ashes and Scumming.

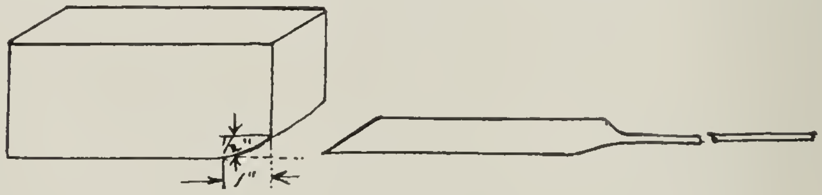
Many a case of scumming is due to the presence of ashes which always contain soluble salts. See that the ashes from the boilers and kilns are properly taken care of. For the same reason brick never should be stacked on ashes, since scumming will be apt to develop on the bottom course.—C. S. Kinnison.

To Reduce the Heat Loss Through Kiln Crowns.

Reduce the amount of the fuel bill by reducing the loss of heat by radiation through the kiln crowns. Cover the crown with about three inches of ground clay or shale, then over this covering place a layer of brick or fireproofing and slush the joints with a thin lime mortar. The saving of fuel in three or four burns will pay the cost of covering the crowns, and the covering will not require any more attention for several years. This covering makes the crown water-proof, thus preventing the water washed brick caused by a leaky crown after a hard rain.—J. R., Ohio.

Hint for Trial Spuds.

Oftentimes trials are lost when the burner is unable to get his trial spud under the brick. A scheme that helps out here is to cut off one edge of the brick and when the trials are placed in the trial holes by the setters, to place them with the shaved side down and towards door of kiln as shown in illustration, thus making it easy to slide spud under trial.—M. D. B.

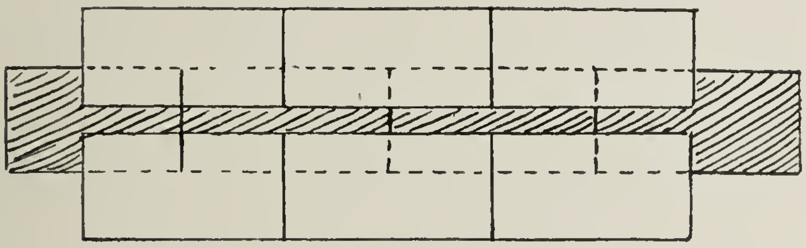


Burns Top and Bottom Uniformly.

Ever since clay products have been burned in permanent kilns some system has been hoped for that would burn the bottom courses of the ware just as hard as the top courses in the down-draft kiln and the top courses just as hard as the bottom courses in the up-draft kiln. This hope is now realized. Such a kiln is in operation at my plant at Canal Winchester, Ohio, and is the invention of C. Hook. In this kiln both the up-draft and down-draft systems are combined and practically the same temperatures are maintained at the bottom and top of the kiln throughout the period of burning and a uniformly burned ware is produced. The system can be installed in any kind of kiln, round or rectangular, and can be used for the burning of all kinds of clay products including brick and drain tile. I have installed this kiln and have tried it out through several burns.—C. L. Boger, Canal Winchester Brick & Tile Co., Canal Winchester, Ohio.

Controlling Burns in Up-Draft Kilns.

Here is a suggestion for those who burn their brick in up-draft kiln. Put on the top of your kilns a double course of platting. Let the center of each brick on the top course overlap the joints of the courses of the lower course both end-ways and side-ways, as in the illustration. The unshaded brick represents the lower course, while shaded brick shows how each brick on the top course should be placed. This method will shut off the draft too much. To start watersmoking it will be necessary to raise a few of the platting. To commence burning raise on end six brick on the top platting. This will enable you to raise on end two in the bottom course in the same place. Make a smoke hole about every four feet square, or enough so the fire will draw in freely. When the brick is dry and the draft commences to increase, then start to close up the holes by replacing the brick, laying them down again. Commence where the heat is coming up the strongest and finish where the heat is the least. Always keep an eye on the draft and do not close the holes too fast or you will choke the draft. Do not keep the holes open too long or they will run away with the heat. This arrangement is to the up-draft kiln what the damper is to the down-draft kiln, and places the kiln completely under the control of the burner. It helps him to retard the hot spots and gives vent to the draft in the cold ones. When all the platting is down tight and no holes allowed to separate in it through the shrinkage of the brick, the draft will be plenty. If the fire draws in and without smoke leaking out through the furnace doors and there is no roar, the draft is just right. The results will be a uniform burn with a great saving of fuel as compared to the system of only placing one course of platting on the top of the kiln.—Robert Twelle, Walnut Hill, Ill.



Look Out for Soiled Car Floors.

Examine the floor of every car offered you for loading, before you put in a gang to sweep it out. If it has previously carried oil or tar, or some other commodity that is apt to stain the brick, the time expended on sweeping will be lost, since it is rank folly to load it, if there be any danger of the tar's melting, or the oil's working up through the bottom layer of straw and coming in contact with the brick. Even though the brick be loaded face up, there is a chance that, in unloading, the backs of the brick that are put into the car first, will come in contact with other brick, and you may be sure of a claim for damaged material, if not a rejection. The railroad will be unwilling to entertain a claim based on the condition of the car, as it will maintain that you should have used better judgment than to have used equipment that was apt to damage your product.—D. W. F.

Should Have Said Ammeters.

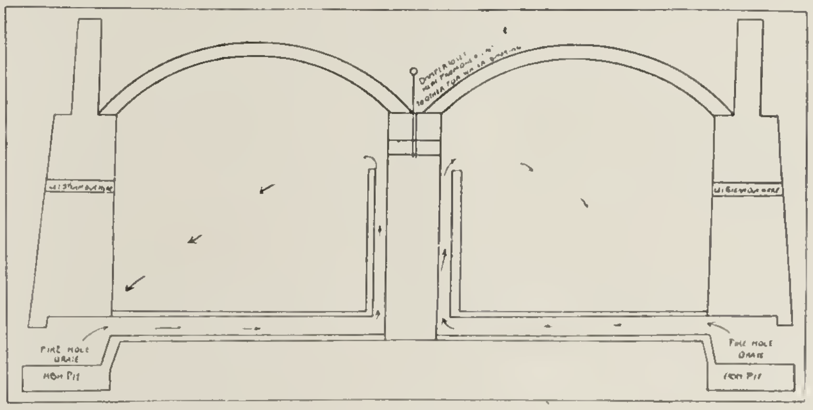
A correction should be noted on page 365, in the Feb. 3 issue, in an item referring to electric motors on pug mills. In this the word aerometer was used, instead of ammeter. Read ammeter for aerometer and considerable sense will be found in the suggestion.

To Reduce Repair Expense on Dry and Wet Pans.

Everyone who has ever used a dry pan or wet pan, knows how injurious it is to let a pan run empty. Save yourself those broken screen plates and breaker arms by raising the mullers high enough to clear the empty pans. Thus, when the pan is emptied, the mullers automatically cease to revolve. To accomplish this with pans having side bearing muller shafts, jack up the mullers singly or raise them with a spring pole. Lift the bearing block and insert a steel block one-half inch thick under it. If you can bolt this block in, or in any other way secure it permanently, do so. With pans having suspended mullers, raise the mullers and take up sufficient chain to raise the mullers about one-half inch above the breaker plates. Graphite is the best lubricant for your crown gears as it does not collect the dust. Mix flake graphite thoroughly with heavy grease, or it can be purchased in this form. After greasing the gear teeth with this graphite mixture, sprinkle on flake graphite until the grease is saturated. Thus the gears have a greasy coating of graphite ground into them, and there need be but little free oil present to collect grit.—H. L. L,

Suggests New Type of Kiln.

Your reader, 280, Michigan, who in the Jan. 20 issue of your magazine, said he was interested in a permanent kiln and asked your advice, might be interested in a new type which I have devised. By reference to the accompanying sketch you will observe that the kiln burns both bottom and top at the same time. The fire passes under the kiln, up the bag wall, over the top and down and then up the chimney. When the fire is lighted the bottom is warmed as well as the top and the steam, therefore, starts at the bottom and top at the same time. The steam is taken from the top out through holes in the wall made for that purpose and from the bottom through the chimney. In this way water-smoking is accomplished in half the time required in an ordinary down-draft kiln. The kiln is a double, three walls making two kilns. One kiln may be burned while the other is being set. The heat from the finished kiln can be used to water-smoke



(*Continued on page 605.*)

Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Salt Glaze for Drain Tile.

294. *Michigan—Please let me know the best way to put a salt glaze on drain tile. We have been working on drain tile and wish to glaze same. Our company is a new one, having started only last August.*

Salt glazing drain tile is practically the same proposition as applying this type of glaze to any other ware, such as conduits or sewer pipe. In any case the temperature must be high and the body practically mature. The following paragraphs are extracted from Searle's book, "Modern Brick Making." Considerable space is given to the subject of salt glazing and necessarily only a portion of the same can be used here:

"In simple glazing with salt, the glaze is really formed from part of the salt combining with part of the clay, so that the glaze is necessarily far more adhesive than when all the constituents of the glaze are mixed together and applied in the form of a slip or spray.

"All clays are not suitable for glazing with salt, as it is found that a certain temperature (corresponding to cone 2 but more usually cone 7) is essential for the full development of the glaze, and that the proportion of alumina and silica must be within comparatively narrow limits. L. E. Barringer has shown that the most suitable clays are those containing about 63 per cent silica and 23 per cent alumina, but provided there is not less than 3 lbs. or more than 8 lbs. of silica to each pound of alumina in the clay a good glaze may be obtained. Some clays outside these limits can be salt-glazed, but will not give really good results. The state in which the silica is present does not appear to be important, and some clays which, alone, cannot be salt-glazed, will give excellent results when mixed with very fine sand, but coarse or medium sand cannot be used for this purpose. The best results are obtained with clays which begin to vitrify at the temperature at which the salt is added, but which do not lose their shape until a far higher temperature is reached.

"The kilns used in salt-glazing may be single or continuous (chamber) kilns, though there are disadvantages in the latter unless they are used exclusively for salt glazing. In most work it is, therefore, better to use separate down-draft kilns with a perforated or false bottom. There must be ample grate area in the fire-boxes, and the generally accepted rule amongst the builders of salt-glazed kilns—viz., 6 sq. ft. kiln area for each fire-box—is generally satisfactory. As the damper in the main flue of the kiln is of great importance in salt-glazing, care should be taken that it fits well and is kept in good order. The brickwork must be tight, as a good, sharp draught is needed during some parts of the firing. The goods are placed so that there is ample room for the salt to reach the faces to be glazed, but apart from this they are set just as if they were ordinary glazed bricks. To some extent the method of setting depends upon the number of headers and stretchers required to be set."

"Modern Brickmaking" is listed by our Book Department at $5 postpaid. It is well worth the price, not only to the beginner, but to the practical clayworker.

Blazing Point of Pine.

313. *Ohio—At what temperature will pine blaze? We wish to know how hot we can carry temperature in the building next to the roof with down-draft kilns inside the building. Also wish to know how the floors are constructed in an entirely fireproof building.*

Any figures given relating to the temperature at which wood will kindle do not have much significance, because the temperature varies with the condition of the wood. For instance, saw-dust or shavings would ignite at a much lower temperature than would a beam. It also depends upon the extent of the surface exposed. The United States Bureau of Mines determined roughly the kindling temperature of pine (the wood being well-seasoned) and reports a kindling temperature of about 550° F. In the experiment, the wood was cut into small ⅛-inch cubes and placed in a crucible and heated while a current of air, about 125 bubbles per minute, was passed through. A current of air was necessary to support the combustion, the air surrounding the crucible not having clear access to the material. Of course this temperature could be lowered by making the air current more vigorous. There is not sufficient space available in these columns to accurately describe the floor construction in a completely fire-proof building. However, we believe that the National Fire Proofing Co. of Pittsburgh, Pa., or the Denison Tile Co., of Cleveland, would be pleased to supply you with this information.

Registered Trademarks on Brick.

374. *Illinois—Some time ago you published an article relative to trade names for rough-faced brick, and with especial reference to copyrighting them. We have lost track of this article and would like to get some information on the subject. We would like to know what kind of names can be copyrighted, a list (if possible) of such names as are already copyrighted, and a list of the names used but not copyrighted.*

Three articles bearing on the above subject have appeared in "Brick and Clay Record" during the past year. They are on page 752, in the May 1 issue; on page 1080 in the June 15 issue, and on page 288 in the issue of August 1. Any word that is not descriptive or geographical is permissible. The descriptive element is not evaded by misspelling. For instance, "Rufface" would be construed as "Rough Face" and would be barred, as describing the material. "Ruftex" and "Textur" have been registered, but "Ruftextur" would never go through. Geographical names—that is, the names of continents, countries, cities, countries, towns, lakes, rivers or seas, are barred, and geographical derivatives, as, for instance, "Oriental," which would not be allowed, nor "Caledonian." So far as we know, no list of the names that are registered ever has been compiled, and the same may be said of the names that are being used, but which are not registered. Better think of some name that seems entirely new to you and submit it to the proper authorities. They will tell you whether someone else has secured the right to use the name, and, at the same time, whether the name itself is one that can be registered. In the meantime you could be using it, with the words "Trade Mark" above or below it. After registration, you add the magic "Reg. U. S. Pat. Off." to the name, and so make your ownership secure.

Moving Pictures for Brick.

363. *New York—Advise me if you know of any place in the United States where they are showing moving pictures as to how brick are manufactured and the important part they take in modern building today. It occurred to me in thinking over the advertising of the brick business, that the brick maker could advertise his goods to better advantage if shown that way, not only as to how they are made, but as to the beauty of a brick house, both as a poor man's house and a rich one's palace as well. I think if the N. B. M. A. would procure a set of films and show the process from pit to a finished house and give a few figures as to cost of a brick house, without knocking the lumber dealer or anyone for that matter, and have them shown in all the large cities, it would prove a great help I think. This is merely an idea, perhaps such things are being done in other cities, anyway. I would be pleased to hear from you.*

There is no general movement in this way that we know of. R. C. Penfield, of the American Clay Machinery Co., Bucyrus, Ohio, who also was president of the International Clay Products Exposition held in this city in 1912 and 1913, did have a number of very interesting pictures made by this process and went to considerable expense in sending them throughout the country. He still possesses the films and under suitable conditions permits them to be loaned to state organizations or other bodies of clayworkers. Your suggestions are excellent. There should be some sort of effort made to have a set or sets of films taken along the lines mentioned for the purpose of loaning or renting them for a nominal fee to brickmakers to use in their local territory. If the N. B. M. A. does not feel an interest in the idea possibly there might be brick manufacturers who can turn the idea to a profit, charging a reasonable rental for the use of the films.

Wants Movie Films.

345. *Canada—Do you know of any good film pictures of the trade? We want to use them in a brick educational campaign.*

We refer you to our reply to 363 New York, in this issue.

Has Infusorial Earth.

433. *Washington—We have a quantity of infusorial earth of a very fine quality. Can you tell us what it is used for and where we can find a market for the same?*

The Armstrong Cork Co. of Pittsburgh, Pa., use infusorial clay for making their "cork" fire brick. It burns very light in weight, and is highly refractory. These brick are especially adapted for arch work in furnaces. We have in preparation a descriptive article on the Armstrong plant, showing by text and illustration the process of manufacture.

About Carborundum Paint.

319. *New York—Can you advise us where we can purchase Carborundum paint?*

The Carborundum Paint Co., Niagara Falls, N. Y., is the manufacturer of this line of material. They have a store at 26 West Broadway, New York City, but advise us that it does not carry this particular item in stock. We advise you to communicate directly with the factory and ascertain just which grade of material you require, as much will depend upon the exact purpose for which you intend using it.

Has Troubles in Drying and Burning.

293. *Illinois—(1) I am making dry press brick and set forty high and would like to know if I could reduce or lessen my soft brick on top of kiln if I set three tiers less or thirty-seven brick high. I have an open wind yard kiln 42 brick wide and I am now getting four to five courses of soft brick. (2) I am making building tile and have a good deal of loss in drying from cracking. I dry with air and sun but keep the air and sun off until about half dry. I tried to use sand but this does not remedy the trouble. I also tried black soil and this helps some but still have a great many broken tile. My clay is the ordinary common clay and makes a fair dry press brick and the smaller sizes in drain tile.*

(1) If you are unable to burn your brick successfully when set 40 high, which is not an extreme height, you probably would not fare much better if the brick are set only 3 tiers less. In the Hudson River district the brick are set 50 high and burned satisfactorily. (2) Your drying difficulty is apparently due to the fact that the operator is too vigorous or perhaps the ware is subjected to drafts. You should be able to dry your clay satisfactorily in almost any of the ordinary shed dryers.

Wants Bungalow Plans.

354. *Arizona—Where can I secure a book of designs with floor plans of brick bungalows? These should be from four to six room houses and must be of the Western bungalow design.*

"One Hundred Bungalows," the price of which is 50c per copy, probably will answer your purposes and we will be pleased to send you either one or more copies at this price. The "Bungalow Magazine," published in Los Angeles, is a publication devoted to buildings of this nature and particularly of Western design, and you may find a more satisfactory book by correspondence with them.

Wants an Address.

404. *Missouri.—In your Feb. 17 number you had an article on the new steel-incased kiln invented by Claude Smith. Can you give me his address?*

Mr. Smith's address is 417 So. Dearborn St., Chicago. An advertisement is carried elsewhere in this issue describing the new kiln.

Wants Brick Statistics.

317. *Missouri.—Have you any statistics showing what city in the United States has the largest brick making plant, and what city has the largest output of brick? Any figures on these points which you may have would be greatly appreciated.*

Chicago probably has the greatest brickmaking institution in the world in the Illinois Brick Company. This concern has some twenty-five or thirty plants, located either within the city limits or suburbs and not a few of these plants are turning out a daily output of more than 300,000 common brick per day. No other product is made and these plants run the year around with very little interruption. They are equipped with the most modern automatic machinery and because of the enormous output and great capacity, have been pictured by the "movies" and described by feature magazines more than once.

The Hudson River district in New York, which supplies the New York market, undoubtedly has the largest output of any section in the world. This product is almost exclusively common or building brick, as is made in Chicago. However, the Hudson River district covers considerable ter-

(*Continued on page 601.*)

The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record," Chicago.

THE question of efflorescence or scumming is still interesting our readers and the propositions made by John C. Boss in a recent letter to this department, have stirred up no end of comment, as we expected they would. Basil Copping, 705 South Myrtle Ave., Kankakee, Ill., is one of our readers who sees something in Mr. Boss' suggestions that are worth commenting on. He writes under date of Jan. 26:

John C. Boss' letter in Jan. 20th issue, in reply to an article by Prof. Chas. F. Binns on the subject of efflorescence, prompts me to ask a few questions, as some of his statements are not quite clear to me. For instance, his remarks about liberating the moisture from a brick and then boiling "the said moisture." (See the sixth paragraph of his letter.)

Referring to the fourth paragraph which says: "If the moisture in a brick should be brought to the boiling point in the drier, would it not so shatter the brick as to render scumming, or any other defect a matter of minor importance?"

In the tenth paragraph he says: "Minerals are dissolved and carried off in the form of vapor."

Is it not a fact that salts in solution are always precipitated when the water is evaporated?

In the same paragraph he also refers to condensation taking place "during the period when the moisture is being expelled."

Are we to understand that condensation and evaporation can occur simultaneously on the same brick?

Mr. Ross says that "since they have likely not had the direct practical experience in noting the drying and burning effect on clays, the analysts are perhaps justified," etc.

I have been under the impression that some of the analysts, particularly Professor Binns, did have the practical experience, and that the result of their experiments not only "apparently appeared" to remedy the trouble, but in many instances had been eminently successful.

Those that differ with Professor Binns in his remedy for efflorescence are reminded that he promised to answer any questions propounded him in this department. If you are in doubt on any point use these columns freely.

Scum—What Is It?

William A. Butler, 1362 Hayes street, San Francisco, Cal., a frequent contributor to this journal and recognized as an authority on kilns and burning, enters into this discussion on efflorescence in this issue. He writes:

Scum—What is it? In answer to this question, I will say that scum is condensed watersmoke, and it depends upon whether the scum is visible or invisible after the brick are burned whether it is a detriment or a benefit.

Scumming in the kiln is done during the watersmoking period. How do we know? Because the gases from the fires become contracted as they pass through the brick to be heated, just the same as steam passing through a long, uncovered pipe will be water at the outlet end.

If the gases traveling through the brick were absolutely dry, there would be no scum from the contraction or condensation of the gases, and all the scum-carrying elements would pass harmlessly out of the kiln.

As the watersmoking of brick brings out moisture, this moisture in its passage through the cooler brick nearer the kiln outlet condenses and adheres to the exposed surface of these last brick.

Now, it is the gases of combustion which condense with the moisture on the cold brick that cause scum. Of course, if we heat our drier with gases direct from the kiln we will scum our brick in the drier, but if the heat dries the brick only by radiation at a temperature consistent with proper drying, there will be no scumming in the drier.

It may be possible that overheating the "hot end" of the drier causes some vegetable or mineral substance in the clay to pass through the tunnel in the form of vapor. If this vapor is soluble in water it will deposit a scum on the wet brick, either visible or invisible, according to its character.

There are some points well understood by practical men, which are very often overlooked by writers. All water entering into a kiln during the burning period, whether it is the moisture contained in fuel or from a blast of steam, goes through the kiln as moisture and comes out of the kiln as moisture at the expense of fuel. Therefore, knowing that scum is caused by the condensation of watersmoke on cold brick, we also know that this tendency is increased or diminished by the moisture contained in the fuel as well as in the clay.

The radiant heat from the cooling brick is usually a clean, dry heat which may be passed through cold brick until the brick are heated to a degree that makes them impervious to scum. The degree of heat being from the heat of boiling water to twice that heat, according to the clay.

In firing a kiln that has been idle for some time, which has independent flues and stack, we find that the gases from the furnaces, in their passage through the cold brick, have become so contracted that the moisture and combustible matter adheres to the cold brick, and the exit gases arriving at the base of the stack for the most part resemble cold carbonic acid gas.

As is usually the case, the draft is insufficient to lift this accumulation of heavy gas at the base of the stack, which soon banks up and causes an entire stoppage of the draft. One can see readily how easy it is to scum the kiln of bricks in this case.

With a furnace or blower in the stack to lift the heavy gas out and keep the draft moving until the brick, flues and stack are warm enough to keep the gases from condensing, the chances of scumming are considerably reduced.

In the down-draft kiln the scumming is done during the first part of the burning. But with the continuous kiln, as the watersmoking is going on continually, the scumming tendency is always present, and must be especially provided for.

The modern continuous kiln has a special flue installed for this purpose. Continuous kilns with side furnaces admit moist air as well as moist fuel which appears to increase the quantity of fuel as well as to increase the tendency towards scumming.

In the continuous kiln, from the full fire towards the draft flue, we have a constantly condensing movement of gases from approximately 2000 deg. F. to 200 deg. F.

The heat from cooling brick is used to heat the brick so as to make them impervious to scum.

Mr. Butler, as he always does, writes most entertainingly on this subject. We submit his letter, without comment, to our readers.

Regarding the Spokane-Seattle Situation.

W. T. Houlahan's interesting letter on the trade conditions in the state of Washington that appeared in the Annual Review Number (page 65, Jan. 6) has brought forth a letter of comment from S. A. Spear, general manager of the Washington Brick, Lime & Sewer Pipe Co., Spokane, Wash. He says:

In looking over your number of Jan. 6, we were naturally quite interested in the article on business conditions in Washington, by W. T. Houlahan, of Seattle. In many respects we are quite in sympathy with Mr. Houlahan and are troubled with the same thing that seems to be affecting him. We have had a lot of business and nothing much in it. It is a condition in this district right now of the survival of the fittest and the better manufacturers have gone after business and have taken it more as a policy of continuous operation than of money making.

Our main object in referring to Mr. Houlahan's article was not to sympathize with him, but to express our appreciation of his humor, as we cannot believe that Mr. Houlahan is serious in all his statements, but is letting his native "funny-bone" get the best of him. He says that Spokane clayworkers instead of being boosters are knockers and, taking him at his word, while having a laugh with him, will do a little 'knocking" on our own account.

We have always heard of the "Seattle spirit" and have appreciated the clayworkers' endeavors towards publicity for their home town, but the best we can say, to our extent at least, that in our lines, "Seattle spirit" consists principally of some very excellent paving brick and the balance, "hot air."

The humor we see in Mr. Houlahan's remarks about the quality of Spokane materials lies in the fact that the bulk of our business for the past year has been past Seattle's nose, going into Seattle itself, beyond Seattle into Aberdeen and up into

(*Continued on page 597.*)

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

Contributing Editors: Prof. Charles F. Binns, Ellis Lovejoy, C. E., Anton Vogt, C. E.

A GERMAN clayworker inquires through the Q. & A. department of Keramische Rundschau concerning a continuous kiln of 36,000 brick daily capacity. He asks if one or two fires are necessary for this output, and if it is more advisable to build two kilns connected to one stack. What should be the measurements of the burning canal? He is using a surface clay.

It is the practice in Germany to dry the brick above the kiln by radiated heat, and the correspondent desires to use this method. He also inquires whether a conveyor or an "emptying" car would be better for handling the brick.

The following replies were given by experts:

(1) An output of 36 M brick daily can be attained in one kiln, using one fire. The cross section of the burning canal should be 9.9 feet wide by 7.9 feet high, while the length of the canal should be 462 feet. For drying the brick a special equipment should be provided, located on the ground, where the combustion gases, as well as the waste heat from the kiln and the exhaust steam can be utilized. Regarding the size of the dryer, no exact figures can be given without knowing more about the conditions existing. It is not advisable to endeavor to dry 30 M brick above the kiln, since the radiated heat and the waste steam are not sufficient to dry this number of brick. Furthermore, it should be stated that in drying equipment located over the kiln, much useless space is heated up, and, in addition, a large cooling surface is exposed. In an ordinary compartment dryer, many brick are put into a relatively small space, where the greatest benefit from the heat can be attained. In this layout described, only one stack would be necessary for both the boilers and the kilns, and it is possible to make nine million brick yearly.

(2) The idea of using two separate continuous kilns for burning 36 M brick daily would indeed be a fine one were it not necessary to consider the cost of building, operation, etc., but as cost certainly has to be considered, the building of two separate kilns would be decidedly impractical. One continuous kiln, using two fires and one center stack, has the additional advantage, over two kilns in that there is more heat available for the freshly set brick and is certainly to be preferred. As regards the dimensions of the burning canal, it should be preferably 9.9 feet wide by 9.2 feet high. A length of 370 feet would be ample for 36 M brick daily.

The arch for a burning canal of this span should consist preferably of about 12-inch segments, since made in this way it would have the greatest strength and if the courses are tightly set, no repairs should be necessary for at least a year, and even then only slight ones.

In regard to the drying equipment the "emptying" wagon ("absetzwagen") is to be preferred to the conveyor, since the brick do not have to be handled so much. For operating the kiln, 18 men are necessary, which includes burners, setters and wheelers. For the entire plant operation, including mining of the clay, 35 to 38 men would suffice. It might be added that one kiln, using 2 fires, has the further advantage of being more compact, making the labor more efficient.

It is advisable, furthermore, to employ an expert for the erection of the kiln, the extra cost being decidedly compensated by the better results obtained.

(3) With a daily output of 36 M brick it seems inadvisable to operate the kiln with only one fire. To burn in this way the burning canal would necessarily be of such large dimensions that not only would heavy repairs be frequently necessary, but furthermore a uniform product could not be attained. Assuming that, in such a kiln, the fire would advance 33 feet every 24 hours, provided sufficient draft was available, and that the ware would stand it, the burning canal should have a cross section of about 108 sq. ft. As a result of the subsequent movements of the kiln, there would be a settling of the crown and buckling of the side walls, no matter how heavy and substantial the masonry. It seems more advantageous, therefore, that only one kiln be used, advancing 2 fires simultaneously. The dimensions of the burning canal would, in this case, be 495 ft. long, 8.2 ft. wide by 7.6 ft. high. The stack could be located either in the center of the kiln or outside of it. Personally, I prefer to locate it outside. Two separate kilns, on the other hand, offer no advantages over one, operated with two fires, and furthermore, the cost is much higher, not to mention the lower heat efficiency resulting from two outfits. In regard to the dryer equipment the "emptying" wagon is to be preferred, because of the saving in labor and less frequent handling of the brick.

(4) Two separate kilns are not to be recommended for burning 36 M brick daily. A single kiln, whose burning canal is 12.4 ft. wide, by 9.1 ft. high and whose length is 280 to 330 ft., is much to be preferred. In order to burn daily the number of brick mentioned, the fire should be advanced about 40 ft. per 24 hours.

The weekly capacity of my plant is about 120,000 brick and since the cross section of the burning canal is 7¾ ft. wide by 7.9 ft. high, it is necessary that the fire advance about 40 ft. every 24 hours, in order to have the mentioned capacity.

(5) From 18 years' experience, I would recommend the burning of 36 M brick daily in one kiln, using only one fire, this way being more advantageous, more economical and also simpler. One kiln with two fires, or two kilns, makes the setting, drawing and burning more expensive, as well as more detailed. I have been using a kiln for the past six years which has 20 chambers, the burning

canal being 13.8 ft. wide and 9.2 ft. high, while its length is 363 ft. The stack is 200 ft. high. The weekly capacity is 200,000, or 33,000 daily. The cost of repairs has been low. I would recommend a conveyor system for transporting the brick to the dryer above the kiln. The extra equipment necessary to use the "emptying" wagon is both bothersome and expensive. I am using a conveyor 2,000 ft. long and am very well pleased with it.

To those who may not be familiar with the German system of drying brick above the kiln, a description of same would perhaps be of interest.

The brick are put onto a small iron car ("absetzwagen") and raised up to the top of the kiln by means of a crane. On top of the kiln girders are built at such distances apart as to permit the frame of the car to rest on them. The car is of the ordinary size, holding about 500 brick. Its distinguishing feature is that the truck is removable by simply throwing a lever. The crane carries the car to the desired position and lowers it to rest on the girders mentioned above. The lever is then thrown and the trucks are pushed from under. When dry, the bricks are removed by simply reversing the process, the crane lowering the brick to any desired point.—Chas. S. Kinnison.

Location of Kiln Stack.

In the Questions and Answers Department of "Tonindustrie-Zeitung" there appears the following query with answers thereto:

Question—Why is it that, of recent years, the stacks of continuous kilns are generally built on the outside, at a distance from the kiln and not in the center?

Answer No. 1—The stresses in a continuous kiln resulting from the "one-sided" expansion of the brick-work (cooling towards the right and high fire to the left) affect a center stack much more seriously, of course, than one built on the outside separate from the kiln. Furthermore, repairs are much more easily made in the outside stack.

Answer No. 2—So long as the stack outside is not located too far from the kiln, it is just as satisfactory as a center stack. If, however, a center stack is to be used, recognition must be made of this fact by constructing the center part of the kiln heavier than would otherwise be the case. In the Hoffman kiln the stack is built outside to permit of the water-smoking arrangements being built in the center. It is furthermore advantageous to have an outside stack because it is much easier to subsequently increase the size of the kiln if it is so desired, or to construct a second smaller kiln, using the one stack for both.

Answer No. 3—When the stack is located outside it can be made to much more conveniently serve for any other fire where a stack is necessary. It can be seen that it is hardly possible to use a center stack for any other fires except those of the kiln itself. The increased breadth of the kiln in the case of a center stack means also increased cost. In building a center stack and not sufficiently insulating it from the burning canal, cracks may easily develop in the former, brought about by it being heated strongly on only one side by the kiln fire. A center stack is justifiable when difficulty would be experienced in keeping water out of the flues of an outside stack.

Answer No. 4—A stack built on the outside is more expensive as well as less efficient than one in the center; it is more expensive because a connecting flue is necessary between it and the smoke-collecting flue, the former passing under the burning canal and under the surface of the ground to the stack without. The outside stack is less efficient because the gases leaving it are considerably cooler. The center stack is cheaper because it can be built out of ordinary straight brick up to the height of the roof of the kiln shed, whereas the more expensive circle brick are used in an outside stack. The center stack is certainly the more advantageous.—Translated by Charles S. Kinnison.

Making Use of Low Grade Clays.

There are many purposes for which a clay can be used, quite apart from the manufacture of brick, tile, and simple pottery. Indeed, some of the clays which are quite unsuitable for these three classes of goods may be of great value in other directions. For instance, it is a mistake to suppose that because a clay lacks plasticity it is worthless. For many articles, plasticity, to more than a limited extent, is highly objectionable, and highly plastic clays must often be mixed with non-plastic sand to reduce their tendency to crack. No one can tell without testing, whether a clay is useful or not, for the most uninteresting looking deposits sometimes develop beautiful colors on burning.

Some clays of very low melting point make excellent covers for other clays, and black tiles are not infrequently made by dipping red-burning clays in a fusible clay.

As every potter knows, the additions made to the clay often determine its value, for few potters use the clay just as it comes from the pit. Mixtures of several clays may be made which will give results not obtainable when a single clay is used, and in this way a clay which is apparently useless may be made valuable. Even a poor clay may often be made into readily salable articles if it is mixed with a clay of better quality, obtainable in the same locality.

Some light colored clays are useful for distempering purposes, as they possess just sufficient plasticity to adhere tenaciously to walls to which they are applied in the form of a thin slip or cream. Other light colored clays may be used for the purposes for which pipeclay is imployed. A few low grade clays are also capable of being used in the manufacture of paints; this is particularly the case with some brown clays.—Brick and Pottery Journal.

Some Corrections.

In the article on gas analysis appearing in the Jan. 6 issue, several errors occur which should be corrected.

At the top of page 94, the second sentence reads: "Then if the bottle M be *raised*," etc. This should read: "Then if the bottle M be *lowered*," etc. A similar error appears in the second paragraph from the bottom of the page, in the same column. The second sentence should read: "This cock is now opened to the kiln and by *lowering* the bottle, the gas is drawn into A."

In the second column on page 94, in paragraph five, the first formula should be "$N \div (N - 3.76 \times O)$" and not as given. The next formula should read "$100\ N \div (N - 3.76 \times O)$" and not $100\ N + (N - 3.76/O)$. The last formula in that paragraph should be "$100\ N \div N$" instead of $100\ N + N$, as given.

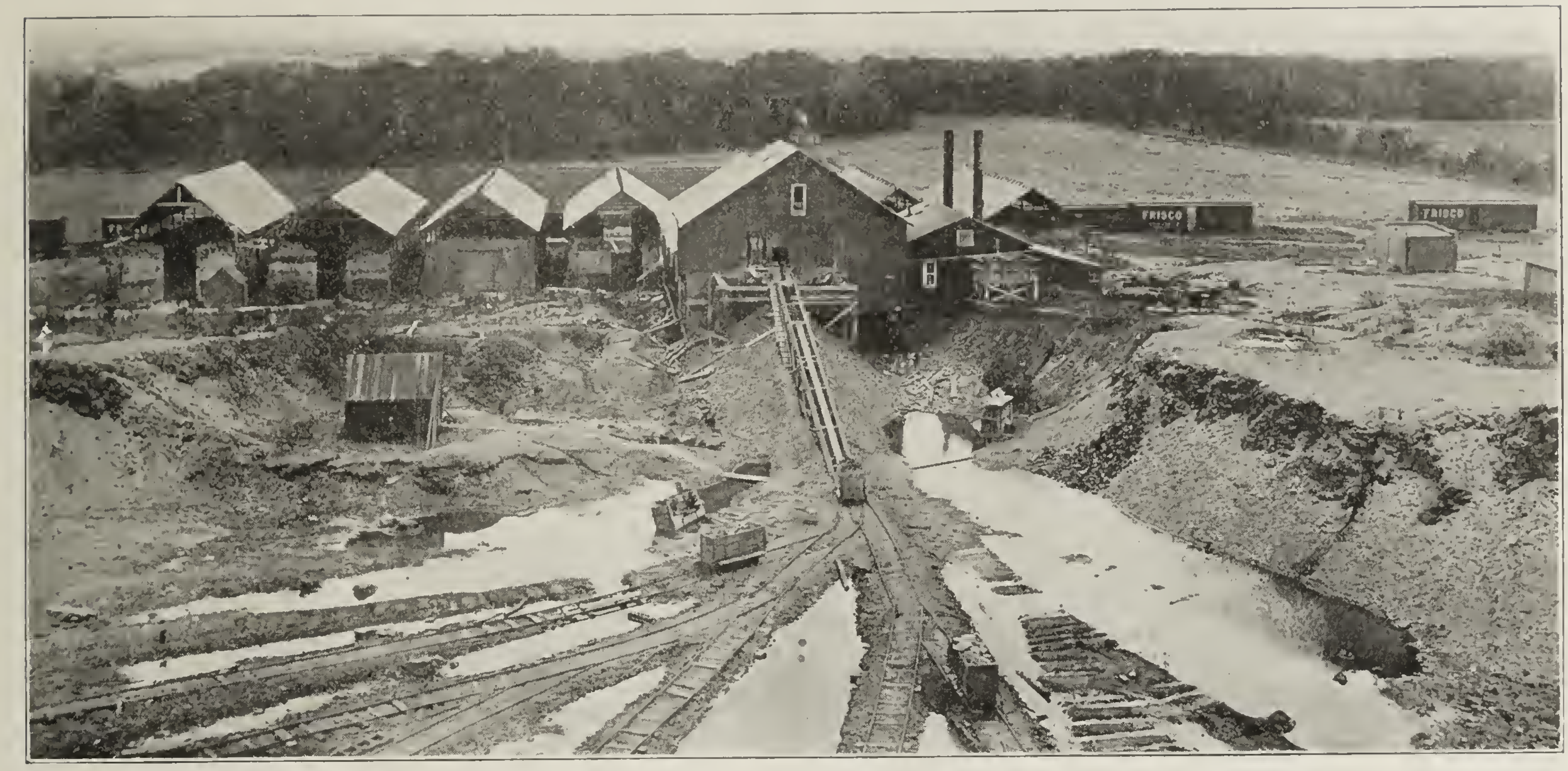
The formula in the next paragraph should read "$100\ N \div (N - (-3.76 \times O)$" or $100\ N \div (N + 3.76 \times O)$" instead of as given.

The formula in the paragraph at top of page 95, should be "$100 \times 78.0 \div [78.0 - (3.76 \times 2.2)]$" instead of $100 \times 78.0 \div 78.0 = (3.76 \times 2.2)$.

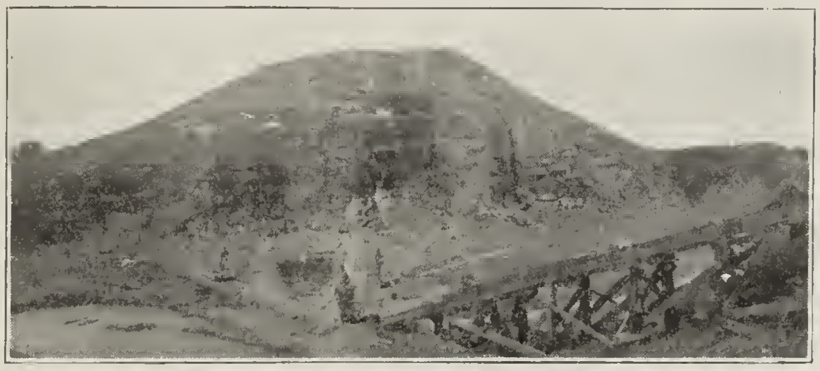
In the fourth paragraph of the second column on page 94, the second sentence should read: "The proportion of nitrogen in the air to the oxygen content of the latter is always in the ratio of 79:21" instead of 9:21, as given.—Chas. S. Kinnison.

With the Clay Plants

A Department Wherein is Set Forth Factories Erected or Planned, Extensions and Alterations, Recent Incorporations and News Items That Will Interest the Craft.



The larger picture shows a general view of the Federal Betterment Co.'s plant, looking from the shale bank.



The smaller picture is a portion of the shale bank, which is 75 feet in height and 250 feet in width.

IT is something to make a product that everyone wants and wants at a living price and is willing to pay that price despite the fact that you are located in a market that is demoralized. In Kansas, where common brick in some portions of the state are selling at a price as low as $2.15, there is a clay plant that fills this description to the letter. It is the Federal Betterment Company, of which J. N. Strickler is the manager, and the location is Cherryville.

Cherryville has been made famous by the brick that Strickler makes. Few architects are there in the Central West that do not know of the "Cherryville Reds" and there are few cities in the same territory that do not have dealers who make a specialty of the "Cherryville Reds."

There are several things that enter into the causes that bring about such a desirable situation for the Cherryville brick. First, of course, of all these, is the shale. There is an unlimited supply of the highest grade shale on the Betterment company's property. The shale bank that is now open is seventy-five feet in height and about 250 feet in width, but this is only a small portion of it.

Then, next, there is the fuel. The Federal company happens also to own several very valuable producing oil and gas wells and the cost item of fuel is reduced to the lowest denominator.

Third, there is the water and again the Federal company appears to enjoy special advantages which few plant owners have. The water is not only of exceptional quality but it is harnessed by the Federal company and made to contribute a considerable profit to the company from commercial and industrial sources.

Next, comes Strickler himself. The Federal company happens to have him interested in the concern and also, but by design, has him as the manager. Mr. Strickler seems to be especially adapted to the conditions that exist in Cherryville for he has, in combination with all the natural advantages and resources at his hand, managed to build up a very profitable business.

While Strickler has Kansas City, Mo., as his market he does not confine himself to it. As a fact he ships by the car loads to Minneapolis and other Central West cities and one of the big Chicago face brick dealers is

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Manganese Steel Castings
EDGAR ALLEN AMERICAN MANGANESE STEEL CO.
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now seeking to take over all the face brick Strickler can spare for the Chicago market and insists on having the exclusive territory rights.

The Cherryville brick are dry press and they are as pretty a smooth-faced brick as one would care to see. With the shale that Strickler has, and the gas and the water, and the good machinery and good management, why should this not be true?

The New Hope (Pa.) Brick Company is progressing rapidly and expects to be ready to start operations in April. The only trouble seems to be the scarcity of labor.

E. C. Miller, manager of the Fort Wayne Brick Co., Ft. Wayne, Ind., and Supt. Bannert were visitors in Chicago a few days ago. They were buying some clay cars and tracks.

The Alton (Ill.) Brick Company, of which Eben Rogers, the newly elected president of the National Brick Manufacturers' Assn., is manager, will hold a meeting on the 17th inst. for the purpose of discussing an increase in its capital stock, from $250,000 to $300,000.

The Ashaway (R. I.) Clay Company's property will be sold under the hammer on the 19th inst. This company met financial difficulties more than two years ago and the plant has been closed since. An advertisement of this sale appears on page 656 of this issue.

Charles Volkmar, widely known as an art ceramist, died at his home at Metuchen, N. J., recently, of pneumonia. Volkmar is said to have been the first artist in this country to paint underglaze on tiles, and his potteries in Metuchen have long been a mecca for seekers of the beautiful in art ceramics.

F. C. Mayer, manager of the C. P. Mayer Brick Company, at Bridgeville, Pa., had his hand caught in the brick cutting machine while replacing a broken wire and has since suffered from blood poisoning, which resulted in the amputation of one finger. He is still at the West Penn Hospital, Pittsburgh, but is out of danger.

The Peters & Reed Pottery Co. of So. Zanesville, Ohio, with Chicago sample room at 180 N. Dearborn St., is meeting favor with its moss aztec pots which come in assortments of 45 pieces, listed at $10 and retailing at $22. This is the profit the retailers ought to make in order to keep alive his interests and boosting talent.

Walter S. Roland, of Reading, Pa., recently had for his guests several out-of-town men, who were looking at the possibilities of brick manufacturing in Reading. Joseph M. Huston, of Harrisburg; Charles Z. Jones, of Philadelphia; Mahlon Newton and James W. Nagle, whose father was born in Reading; and Frank H. Taylor, of Philadelphia, comprised the party.

At Lambertville, N. J., the Chamber of Commerce is raising funds for the starting of a pottery for the manufacture of sanitary specialties. H. J. Ammison, who was one of the organizers of the Lambertville Pottery Co., is trying to enlist capital. Mr. Ammison holds patents for sanitary specialteis, and is also said to hold a patent for a mold used in the making of sanitary ware.

The Standard Sanitary Manufacturing Company, of Pittsburgh, Pa., announces that it has purchased the properties of the Great Western Pottery Company, at Kokomo, Ind., and Tiffin, Ohio, and that the management of the pottery business will be continued as heretofore, without interruption, with A. V. Conradt as general manager and Wm. G. Coxon as general superintendent. It is also announced that the quality of the product of these potteries will be maintained under the new ownership, and, where possible, improved.

At the annual meeting of the Grinnell (Iowa) Brick & Tile Company, the following board of directors was re-elected: William Vogt, J. P. Lyman, Grant Ramsey, T. J. Bray, C. A. Smith, Paul Essler, R. G. Coutts and Ross V. Coutts. R. G. Coutts, who has served as president of the company for seven successive years, declined to stand as a candidate for re-election, and the directors elected Grant Ramsey to the presidency. William Vogt was made vice-president; C. A. Smith, secretary; H. F. Lanphere, treasurer. The various reports presented showed the company to be in excellent condition.

The Porter, Ind., plant of the Hydraulic-Press Brick Company, was closed down February 4, for the purpose of installing a Stirling type high pressure water tube boiler, the old boilers being cut up and shipped out to Chicago Heights, Ill. During the past year, a type "0" Thew steam shovel has been added to the equipment and new steel dump cars will be in commission when the plant is started up again. The kilns are being overhauled and it is possible that new ones will be built, it being the object of the superintendent, F. W. Bryan, to exceed the 1913 output, which was 11,500,000 brick. It is expected that the plant will be in full operation by March 15.

The clay diggers at the Acme Clay works, at New Cumberland, W. Va., of which William J. Chapman is owner and operator, are out on a strike. Chapman is installing electric mining machinery and will shoot the clay down and have the miners load and push the cars to the pass away, a distance of about 1,000 feet. Mr. Chapman offered to pay 11 cents per ton for this work, but the miners demand 15 cents per ton and object to William Gillis as the check weighman. It is reported that Chapman has offered to pay 12 cents per ton, but not willing to concede all the miners are asking. No miners are at work and they have been meeting trains to see if any strike breakers come in. Mr. Chapman has asked protection of the county and town officials.

The Letter Box

(*Continued from page 592.*)

Victoria, the materials being face brick, architectural terra cotta and sewer pipe, and this business secured at better prices than Seattle quoted on the same work. Therefore, we think the joke is ours for not only are our products of such quality as to permit them to be shipped in competition over a district of 400 miles radius, but our common brick have gone into buildings in Spokane, where a large percentage of them were selected out for face brick work.

We will admit that there are poor brick made around Spokane, but while this statement may be the "knocking" that Mr. Houlahan refers to, we are under the impression that he has not visited all the largest and best yards around here. We think the fact of our shipping our materials past Seattle will demonstrate to Mr. Houlahan's satisfaction that Spokane does make good material and that we are not sitting down and letting other lines take business away from us, if we can help it.

We know something of Mr. Houlahan and his product and can commend both and we only ask that he be fair and give Spokane her due and we are sure that Spokane will assist him in every way she can in his good work.

What seems to be needed in the state of Washington is a reorganization of the State Association. There is nothing like team work in any line of endeavor. The "Get-Together" spirit should be the Seattle spirit and the spirit of Spokane and every other locality.

Undoubtedly more of the Washington clay workers smile when association work is mentioned to them and grit their teeth when the "Get-Together" spirit is referred to—having had more or less unpleasant experiences in previous unsuccessful attempts.

The trouble, however, was not in the association, but in the methods employed to achieve the results desired.

Most of the large industries long since have discarded the old-fashion competition and substitute a more sincere and a more honest method of pushing their products. It is pleasing, to say the least, to see the clay product industry turning to the same modern way of conducting association work.

Several of the national bodies of clay workers have adopted the new idea with undreamed-of success. A number of state organizations are doing likewise. For instance, the Iowa, Illinois and Minnesota associations, each of these progressive bodies of clay workers have decided to adopt the open-price policy in their work and now are taking preliminary steps towards perfecting the scheme.

Why not watch the work of these progressive clay workers and profit by their good judgment?

Tells of a Good Plant Location.

Silas A. Day, 514 Seventh St., Evansville, Ind., in seeking to help 236 Ohio, who expressed a desire in the "Question and Answer" Department of the Jan. 6 issue for a suitable location for a paving brick plant, has written us very optimistically of his home city, calling our correspondent's atention to a site which he, as a practical brickmaker, believes to be ideal. He says:

I want to call the attention of 236, Ohio (Questions and Answers Department, Jan. 6 issue) to Evansville. This city is growing rapidly and doing a large amount of building and using more brick than the yards here have been able to supply. The Standard Brick Co. makes a good many brick but not enough.

About a mile of paving has just been ordered and thousands of pavers are used here for alleys and some streets from Albion, Ill. The government is building a dam in the Ohio that will give us a constant 9-foot stage of water. This and the revival of river haul, to be brought about by the Panama canal, will make this an important terminal for more railroads and add to our growth. This is more probable by reason of the vast coal beds under and around us.

I will send you a copy of the "Courier" by next mail, which will show you what we are doing. Building operations are 200 to 300 per cent greater, so far this month, than any January in our history.

There is good shale in the hills on the north and west of the

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> city, but I think the best lles some 20 miles out on the E. & I. R. R., on which line and on the belt line, a plant could be built. It would not cost much to ship the shale to the plant, as it is right at the track and loading or unloading will cost little, and the belt line will lay the brick right down to many a good job.
>
> Should a yard buy shale land where I suggest, the coal for burning can be mined from the same ground and there is a shaft already sunk, to the coal, 70 feet below the surface. This coal is 8 feet 6 inches thick. The top 40 inches is magnificent coal, the next 30 inches (about) is bone coal, with a 3-inch parting in its middle, and below that is again good coal.
>
> This bone coal is what hurt the mine for local use as it did not pay to mine it and throw it away. But it is just the thing for a gas producer, as it is very rich in gas and will not coke and clinker up so as to keep men punching it up. With a producer-fired kiln, the fuel would cost not to exceed 25 cents a thousand. This would leave the good coal for sale at a profit. I know all about this coal as I opened the mine and then sold out my interest.
>
> We now have the Louisville & Nashville, the Illinois Central, the Big Four, the Chicago & Illinois and the Evansville & Indianapolis roads, while the Pennsylvania and the B. O. & S. W. certainly will come in. Besides, we have four traction lines and two to be built next year, and the Ohio river.
>
> Now, I think it will pay you to come down and look the situation over. If you should consider that coal I speak of and adopt a producer kiln, then the plant ought to be located right at the shale. The brick can be shipped in possibly as cheap as the shale and, in many cases, can be unloaded right at the job.
>
> Lots of hollow block is being used here now, and its manufacture would pay. Besides a plant there would be in easy shipping reach of some extra good fire clay. There is a plant here which I think can be bought, but I think you can build a better one for less money.
>
> Look out for the paper I will send, as it is a "hummer." I have been a brickmaker myself and think I know just what is needed.

Shortly after receipt of the above letter, we received an "emergency call" from "236 Ohio," who happens to be Miss Rose Bohler, connected with the Ohio and Western Lime Co., at Marion, Ohio. Miss Bohler is interested in the proposed new plant and, as her original letter stated, desired to get in touch with some one owning a first class shale suitable for paving block manufacture. She expressed a preference to some location in Ohio.

We have forwarded numerous telegrams and letters to Miss Bohler since her first inquiry came in and evidently this deluge has overwhelmed her. The following "emergency call" gives weight to this presumption:

> I certainly thank you for your kindness in trying to help me find a suitable location for a brick plant, but I am so swamped with letters that I now have all the locations I care for to pick from. Please discontinue further publicity.

We are glad to have been of service to Miss Bohler and hope she will find a suitable location out of the numerous suggestions made her by our readers. We hope some day soon to add Miss Bohler's name to our list of women who are in the clay product field. This test, while limited, bids fair, now that many of the states have given the women equal suffrage privileges, to be greatly augumented. Mrs. Georgiana Buckley is operating a thriving brick and tile plant in Montrose, Colo., and Miss Astrid Rosing is conducting one of the largest jobbing businesses in the Middle West in all sorts of clay products, her office being in the Harris Trust Building, Chicago, where she has sales rooms and maintains a very large selling force.

Sounds Optimistic Key.

The Arkansas Brick & Mfg. Co., of Little Rock, Ark., is sending out a typewritten letter to its patrons which reflects considerable optimism and certainly leaves the impression that this concern has had a prosperous season. W. W. Dickinson, president of the company, sends the letter to us, which follows:

> We are pleased to state to our many friends and customers that the year 1913 was a very satisfactory year and we desire to thank one and all of them for helping to make it so. It is gratifying to know that our efforts to please have been appreciated in so substantial a way.
>
> There has been an awakening during the past year among our people, who, more than ever, believe in encouraging and patronizing the home manufacturer, recognizing that in doing so they are building up their community and enriching their city and state. It we are ever to attain to greatness in a com-

mercial way we must take advantage of what nature has done for us. Go after factories, bring them home with us and locate them, and in this way turn our raw material into a finished product.

Little Rock has made great strides during the past year through the efforts of our Board of Trade and Chamber of Commerce, aided and abetted by that great Booster, Al Read, who continues to give a factory site away every week and is making money by doing it.

Anything other cities have done Little Rock can do. The thing for us all to do, in "Tango parlance," is to "Go to it, stay at it" and soon we will be able to dance in the head set, and then the "desideratum" will be ours.

Has a Pavement War Ahead.

R. E. Bransford, of T. L. Bransford & Sons, Union City, Tenn., writes:

> Enclosed find check for $2.00. Please place same to my credit and let the "Brick and Clay Record" come on. I get a great deal of good out of it.
>
> If it is not out of line I would like to know where I could get some articles on brick paving. The city is going to have a lot done and I want to convince them that brick is better than concrete or any other material. I am a brick booster and although concrete is trying to make a show I am also getting my part for brick. Keep on with "Brick and Clay Record" and I guess clayworkers will still prosper.
>
> I would like to get one of your brick bungalow books and would send you the cash but don't know what the price is as I have not a copy of my magazine at hand.

We are sending our Tennessee friend a copy of "The Truth About the Wayne County Concrete Roads." This pamphlet is a reprint of the article under a similar heading that appeared in the Oct. 7, 1913, issue of this magazine. We can supply these in quantities at the following prices: One hundred, $3.50; 500, $16.50; 1,000, $25.00.

We also have asked the National Paving Brick Manufacturers' Association to forward its literature to you.

Wants Help to Fight Concrete.

Fred L. Twining, manager of the Michigan Vitrified Brick Co., Bay City, Mich., has a fight on with the concrete fellows. He wrote us as follows:

> On Wednesday, the 21st, there is to be a good roads convention held here, which will be largely attended from all over the state. I learned this morning that the cement people are going to have a man here to lecture and give stereopticon views of cement roads. Is there anything you can do in the way of sending a man here to talk brick roads? Or, if you did not feel that you could send anyone to lecture at this convention, have you any literature on brick roads you could you send me to put out? I know this is short notice but thought I would take a chance any way.

Mr. Twining's letter reached us on the afternoon before the meeting referred to, and, as he said, was rather short notice. However we did the best we could under the circumstances. We wrote him as follows:

> We have just wired the National Paving Brick Manufacturers Association, at Cleveland, telling them that the cement people will have a lecturer at Bay City tomorrow, with a stereopticon. We are of the opinion that they have made preparations to be represented and feel that, if they had not intended going out in real earnest, your timely "tip" will do some good.
>
> We are sending you 100 copies of "The Truth About Wayne County Roads." If the stereopticon views are of the Wayne County roads, and it is on them that the cement people are making their big play, these leaflets will do a great deal to offset the lecturer's eloquence.

A few days later we received the following letter from Mr. Twining:

> We received the 100 copies of good roads literature for which I thank you. Although it did not get here in time for the convention we will have good use for it as we surely have a big fight on here. The cement people are working hard.

Does not this prove that it is worth while for all paving brick manufacturers to be affiliated with the National Paving Brick Manufacturers' Association? Mr. Blair's organization is doing a great work for the paving brick manufacturers and while he and his associates are unselfish in their attitude towards non-members, there must be limitations. We know of a positive knowledge that the N. P. B. M. A. has done much for non-members and uncomplainingly, but it is unreasonable to suppose it will neglect those manufacturers who contribute to its support to aid those who do not feel it worth while paying the small assessment required.

The N. P. B. M. A. is a great help to the paving block

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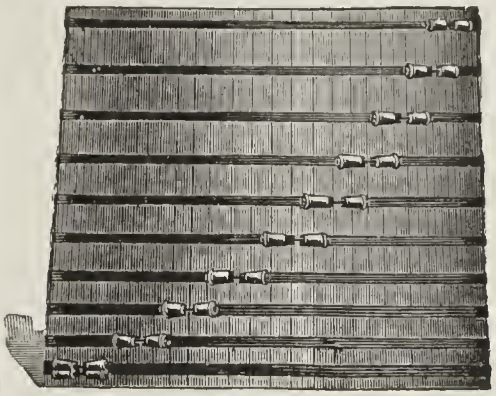

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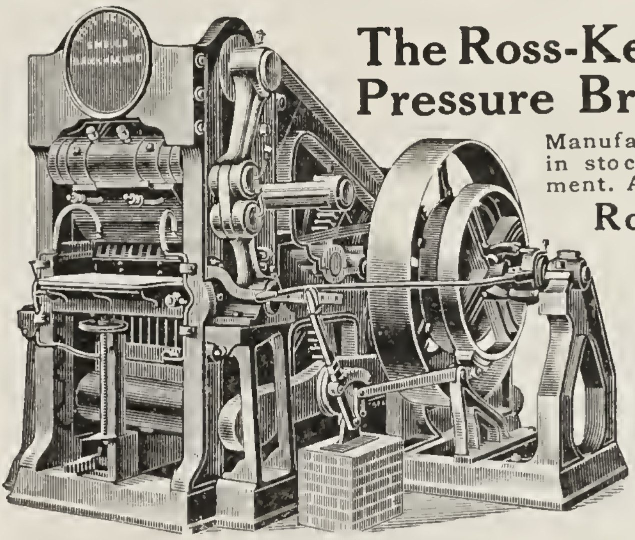

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THEY INSURE
EVEN { BURNS COLORS
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ADJUSTABLE TIP
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The Department of Clayworking and Ceramics.

Established by the Legislature in 1902 at the New Jersey State College, Rutgers College, New Brunswick, N. J.

Two courses have been provided: The regular course of four years; a short course of two years designed for the young man who has had practical experience in clayworking.

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makers and every manufacturer should be a contributing member, so that when the time to call for help comes there will be some sort of organized aid to rely on.

Blames Us for Leading Her Astray.

Mrs. Jennie M. King, of Dahinda, Ill., has considerable farm property in that vicinity. In the Aug. 1, 1912, issue of this magazine, page 96, Mrs. King read a short news article which told of the claims of one G. Ryland Newland, a clay expert and analyist, of Trenton, N. J., who announced the discovery of a new process for making "weather-proof brick." Mrs. King was interested in Mr. Ryland's claims and wrote him. Instead of receiving a reply from him she received a letter from a Mr. French who said he was looking after Mr. Ryland's business. This correspondence led to Mr. French making a personal trip to Dehinda and later some tests. This experience with Mr. French did not prove satisfactory to Mrs. King, and she has charged up the $1000 or more invested in the tests to the "profit and loss" column, with emphasis on the "loss" end.

Mrs. King has written this office several times in an effort to locate Mr. Ryland and we have sought diligently to locate him for her without result.

The following communication is the last letter received from Mrs. King:

> After explaining all I did to you, I have not heard one word from you. I do think really it is positively your duty to help if you possibly can to start the wheels to rolling in a new brick plant here, as what started me was reading in "Brick and Clay Record" about the wonders of G. Ryland Newland's new discovery. Now I do not want to be harsh in anyway but the time will come when you will regret publishing his claims in your paper. Even if I am friendly with you, someone else may not be.
>
> I trust you will find someone with capital to start the making of a large brick and tile plant and the building of a large city in this wonderful little valley. A more beautiful place could not be made, for scenery of its kind.

We wrote Mrs. King as follows:

> We were under the impression that we had given you whatever information at our hands as regarding G. Ryland Newlands. We inserted a notice at the time you first wrote us, in the magazine, asking our readers to give us any information regarding Mr. Newlands and his location. We failed to get any response and at the time, so notified you.
>
> We note that you are interested in getting someone to start a brick and tile plant in your vicinity and if you will write us in detail just what the situation is and the numerous advantages which you claim for that section, we will be pleased to do what we can to interest capital.

Since that date Mrs. King's husband has visited this office and exhibited samples of the work French is said to have made from the clay and slate found on the King farm, which encourages us to believe, if the test brick are legitimate, to say that the Dahinda deposit is a most valuable one and worth while working.

We have advised the Kings to send their clay to either of the State Ceramic Schools or to some recognized analysts for a commercial test. If this test justifies it, there will be little trouble in getting some one interested in joining in with Mrs. King in developing the proposition.

We might add here that the article describing Mr. Ryland's process solely was in the nature of a news item and given for what it was worth. It did not receive an editorial endorsement any more than does any other new process, invention or device that is announced through these columns. We regret, of course, to learn that Mrs. King's experience proved so costly, but it emphasises the necessity of observing that well-established rule—"Look before you leap."

Pass this Copy Around

When you have finished reading this issue of "Brick and Clay Record" start it on the rounds of your plant and let each foreman and assistant read it. It may save many dollars.

Questions and Answers

(*Continued from page 591.*)

ritory along the river and comprises a number of plants owned by separate companies or corporations.

Wants Books on Manufacture.

359. *Idaho—I want the best book treating on brickmaking—something that would be of value to a person who knows nothing about the industry. I have a tract of clay land, and expect to put up a plant this summer. I know very little about the industry.*

"Modern Brickmaking," by Searles, is probably the one that would best answer your purpose. This book is listed by us at $5, postpaid. Another book which would be of special interest to you is "How to Analyze Clay," the price of which is $1 postpaid. We are offering this during the month of February, free with subscriptions to our magazine, the price of which is $2 per year. Regular subscribers may also obtain a copy of the same by paying in advance for another year. Still another book which certainly would prove valuable to one who contemplates developing new clay property is "Clays, Their Occurrence, Properties and Uses," by Ries, the price of which is $5, postpaid.

Wants Freight Rate Verified.

380. *New York—In a recent issue of "Brick & Clay Record" we noted the publication of a rate on brick from Chester, Pa., to LaTuque, Que., of 26c per cwt. Will you kindly give your authority for said rate?*

This rate is published in P. & R. Ry, I. C. C. No. J 4474. In this connection, let us say that our readers may, by paying attention to the freight tariff changes that are published in every issue, keep their freight rate schedules up to date without having to wade through a mass of information that does not interest them. The information, as printed in this journal, is conveniently arranged for shippers, the originating points being given and alphabetically arranged.

As to Preheating Clay.

360. *Indiana—*(1) *My sewer pipe pops at 200 degrees Centigrade. Will preheating overcome this?* (2) *Will preheating cause clay to laminate?* (3) *Does it increase fire shrinkage?* (4) *At what stage?* (5) *How long do you preheat clays?*

(1) No. (2) No. (3) Yes. (4) During vitrification. (5) From three to five hours.

More About Illinois Freight Rates.

306. *Illinois—I have written to F. A. Barber and J. E. Dillon, as advised by you in the answer published on page 360 of your issue of Feb. 3. The former has not, as yet, given me any reply, but Mr. Dillon has, and I feel very much indebted to you for the advice you have given me. If you can do anything with Mr. Barber, it will add to the obligation you have already put me under. The points to which I asked him to give me rates were Niantic, Buffalo, Harnstown, Hayworth, Woodford, Mt. Sterling, Versailles and Wapella, in in Illinois and Janesville, Wis., and Hannibal, Mo. The rates wanted are on drain tile and hollow building block, carloads. At present we are using the railroad switch, but in a few weeks will, we expect, have a private switch, the company's men having been out to see about it.*

The principal reason why you have not received word from Mr. Barber is that no commodity rates from Illiopolis, Ill., are published by the Wabash R. R. As a consequence, class rates will govern. If the switch you are about to put in con-

CLAY HAULAGE

Reduce costs of transportation by using a

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Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

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New York City: 362—50 Church St.
Vancouver: 175 Cordova St.

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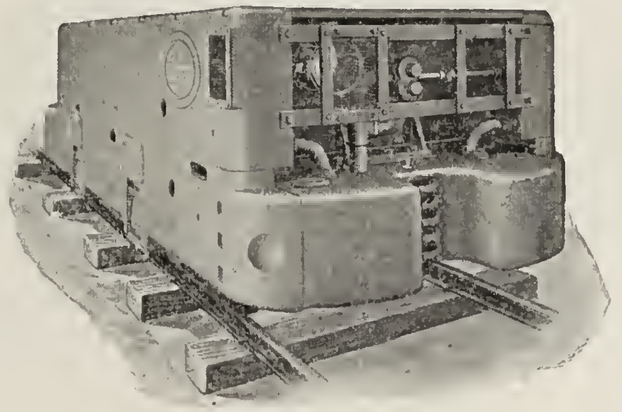

Over 300 in Use—

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Manufacturers of the famous

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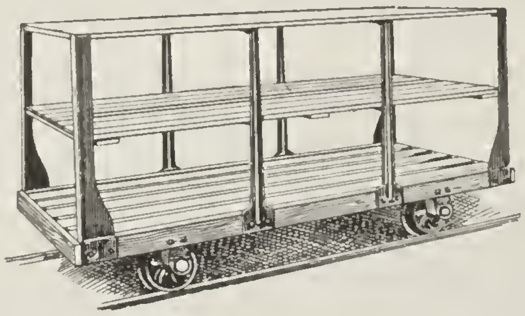
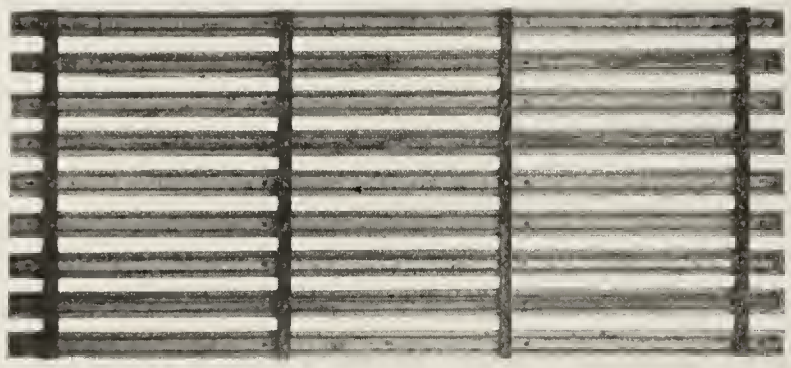


Write for particulars about them and the Vulcan Improved Combination Wood and Steel Decks.



Also grey iron castings for all kinds of brick and tile machinery.

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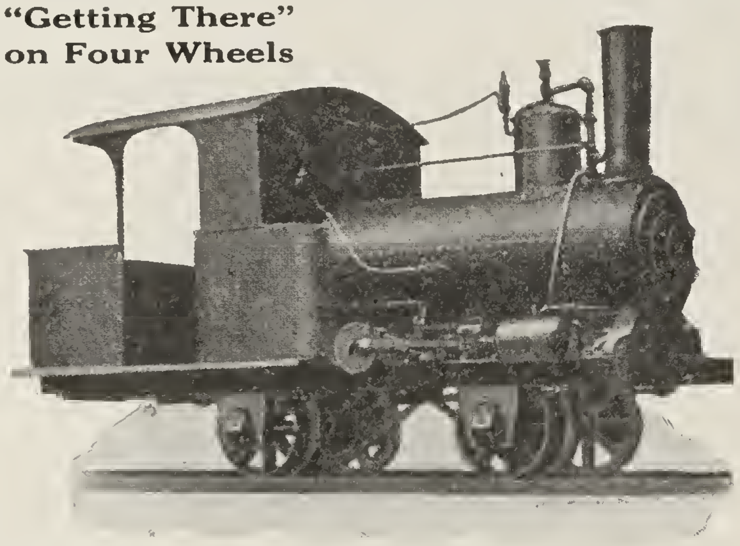

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It pulls a full load under every condition and on any track. Does more and costs less than any type of Standard Locomotive of same size and power.

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DEWEY BROS.

GOLDSBORO, N. C.

nects with the Wabash, you should have no difficulty in securing the publication of commodity rates over that road, in every direction. If it connects with the Illinois Traction System only, then you may have some difficulty in convincing the Wabash that you would be in a position to give them enough business to warrant the expense of publishing the tariff. Why not arrange so that your switch will connect with both roads?

Construction of Hollow Block.

337. *Missouri—Have you any literature on the construction details of hollow block silos, and which gives all of the arguments in favor of this material?*

We refer you to page 780, Oct. 21, 1913, issue of "Brick and Clay Record." You will find a valuable contribution on "The Silo—How to Make it Permanent." It gives construction details and all the good arguments for the use of hollow clay tile. We have reprinted this in bulletin form and will sell them in quantities at a nominal cost.

Interested in Pottery Journals.

341. *Illinois—Can you give us the address of a journal devoted exclusively to the manufacture of pottery? We are taking up the manufacture of pots, jugs and similar ware.*

Most of the publications in the clay product field cover more than one branch of the industry, as does "Brick and Clay Record," which seeks to print a magazine of particular interest to the manufacture of heavier wares and of some value to the clayworker in general. "Pottery and glass," 395 Fourth Avenue, New York, "Pottery, Glass and Brass Salesman," 76 Park Place, New York, "Crockery and Glass Journal," 92 West Broadway, New York, and "China, Glass & Lamps," Pittsburgh, Pa.

Wayne County Concrete Roads.

339. *Maryland—In a recent issue of your publication I read an article by Paul E. Green, entitled, "The Truth About Concrete Roads in Wayne County." If you can furnish me with the issue in which this article appeared, I will appreciate the favor very much. Any expense incurred in so doing will be promptly adjusted.*

The article which you refer to, Mr. Paul E. Green, on concrete roads in Wayne county, appeared in our Oct. 7th, 1913, issue. We are sending you a reprint of the same, as per your request.

As to Tunnel Kilns.

283. *California—Please accept thanks for your answer to my recent inquiry regarding the use of tunnel kilns. However, I must not have made myself very clear for I wanted particularly to learn if there were any tunnel kilns in operation in this country where the fire is stationary and the ware moves through the different temperature zones. The usual type of continuous kiln is probably the one that we shall use and you have put me in touch with what there is in that line, for which I am very much obliged.*

In the real tunnel kiln, the fire is always stationary while the ware travels, as distinguished from the continuous kiln, where the ware is fixed and fire advances. A tunnel kiln of the ordinary type can be seen in operation at the plant of the General Electric Co., Schenectady, N. Y., and at the plant of the Armstrong Cork Co., Pittsburgh, Pa.

Finds Expert Test Unnecessary.

291. *Oregon—I have neglected writing you in regard to the clay I sent to you and which you state is not enough for*

a burning test. We have finished burning a test kiln and obtained very good results, and I believe it would be well enough to drop your test. Hope I have not caused you too much trouble.

We are glad to know you have satisfied yourself as to the value of your clay without the expense of a laboratory test. Our readers never cause us "too much trouble." We created this department to be of practical service to our subscribers and the more you use it the better pleased we are.

Address of German Paper.

357. *Illinois—Can you give me the address of "Tonindustrie-Zeitung," and tell me where I can obtain the best published works on continuous kiln construction details, including Schmatolla's "Die Brennofen?"*

"Tonindustrie Zeitung" is printed at Berlin, N. W., 21, Dreysestrasse 4, Germany. We have no record of any published works on continuous kilns, details and construction, other than the various articles that have appeared in the trade journals from time to time. The manufacturers and designers of kilns have a mass of information on this subject and we are requesting them to send you what information they may have. You may obtain Schmatolla's book "Die Brennofen" direct from E. Schmatolla, 150 Nassau St., New York, N. Y. It is printed in German, and we have never listed it in our book department for that reason.

Wants Foreign Publication.

350. *California—In your issue of Jan. 6, 1914, on page 95, illustrations are shown of pug mill knives, also a drawing of porous partition block, evidently taken from the "Tonindustrie Zeitung" published somewhere in Germany. Would it be possible for me to get the name and place where this publication is published and also of the manufacturer of the porous partition block? Being of German descent and understanding the language it would be interesting for me to correspond. I also wish to subscribe for the "Tonindustrie Zeitung."*

The address of the German publication, "Tonindustrie Zeitung," is Berlin N. W. 21, Dreysestr. 4, Germany. We have a similar inquiry from another correspondent regarding articles published in the same issue of the magazine and we are making inquiry along that line. We are afraid, however, that we will be unable to give you the name of the manufacturers of the pug mill knives, as illustrated.

Prize Problem Contest

In each issue of "Brick and Clay Record" a problem will be propounded to the readers—usually an actual experience of some clay worker, who, confronted with certain conditions, sought a solution and succeeded, or, having failed, still waits a Moses to lead him out of the wilderness. A special prize of a paid-in-advance subscription to "Brick and Clay Record" for three years will be given for the best answer.

PROBLEM NO. 6:

What would you do if you were going to install electric motors in your plant—use belt drive or connect them direct to the machines?

Send in your answer to Problem No. 6, so it will reach us before March 12. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 7:

What would you do if you had a competitor in your

To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

Literature on Application

Other High Grade Chemicals For Clay Industries

The Roessler & Hasslacher Chemical Company

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LEHIGH PORTLAND CEMENT COMPANY
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LEHIGH PORTLAND CEMENT
CAPACITY 2,000,000 BBLS YEARLY

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INCREASES CAPACITY — IMPROVES PRODUCT

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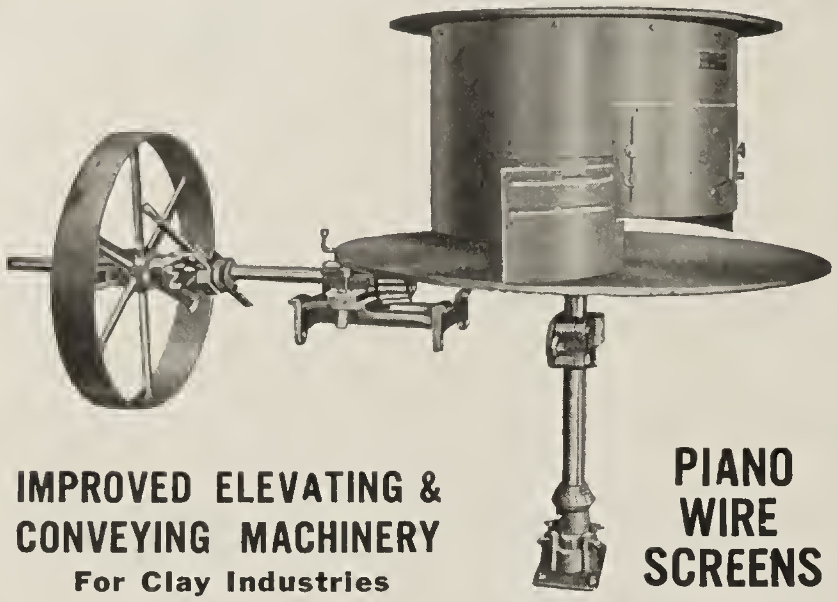

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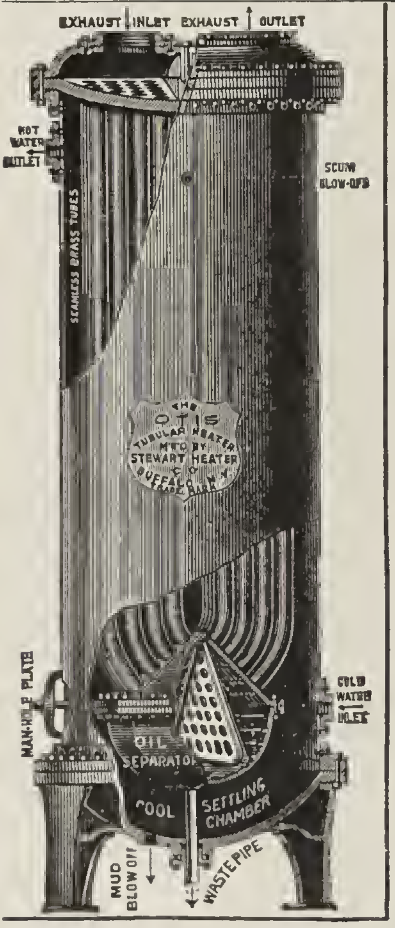

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Tubular Feed Water Heater, Oil Separator and Purifier

is not an experiment but a tried and trusted appliance that the makers are not afraid to

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To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust*, so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator*.

We are so sure of the OTIS that we agree to pay all cost of a trial—freight, cartage, piping, etc.—if it fails to do all we claim for it.

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The Stewart Heater Company,
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district whose labor, power, fuel and shipping conditions were better than yours, and who, despite his opportunities to obtain a greater profit by maintaining fair prices, insisted on placing his prices below what you yourself could sell for at a profit?

Send in your answer to Problem No. 7, so it will reach us before March 20. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

ANSWERS TO PROBLEM NO. 5.

The three answers to Problem No. 5 submitted are practically the same and, as there is little to be chosen among them, we have divided the prize of a three years' subscription, each of the contestants being awarded a year's subscription.

The question to be answered follows:

What would you do if your fire brick, which always had burned uniformly and without trouble, suddenly came out of the kiln badly cracked? The cracks usually are on the edge of the brick and run towards the center for about one or two inches. The same clay is being used, the same methods of manufacture, the same dryer, the same kilns and the same men are utilized in the production as heretofore. The brick from one part of the kiln do not crack any oftener than in another part.

Have Clay Analyzed.

The point standing out most prominently is, "What would you do?" So I shall endeavor to answer it from that point.

While it is assumed in the problem given, that the same conditions exist at the time of the trouble as before, I can hardly see where any benefit will be derived by searching for new troubles, with no positive assurance that the present conditions are not at fault. The quicker remedy is desired by all, so only the results of a very careful analysis would satisy me that the present conditions were not the cause. Then an investigation of the possible things, as causes not common to the present conditions, would be made. Allow me to emphasize the word analysis. Not merely a review of former troubles, but a careful diagnosis.

In making this analysis take a number of the specimens. Compare them and learn if all are caused by the same thing. These troubles can be classified under three heads, namely: Molding, drying and burning. An examination of the specimen will tell whether it came under one of these three heads.

From the meagre amount of description given, I am lead to believe the trouble is caused from one of the following:

1. Uneven drying.
2. Variable clay density.
3. Insufficient pugging.
4. Insufficient mixing.
5. Too dense body.
6. Excessive shrinkage.
7. Flaws developed in molding.
8. Lack of tensile strength.
9. Too rapid drying.

The causes are common both to warping and cracking and definite decision could best be determined by inspection. I believe the trouble is only developed by the burning and actually is started beforehand.—Robert A. Mouch, Dawson Park, Ill.

Blames New Strata of Clay.

From your statements it occurs to me that you have uncovered a new clay strata in your pit. Your statement that your ware suddenly assumed a bad cracking tendency goes to prove the existence of a different natured clay, especially when formerly you infer you had a first class product under same firing and manufacturing conditions.

This new strata might contain injurious shrinking ingredients, not injurious when worked as a separate unit, but injurious when mixed with another strata of less or more shrinkage tendencies.

I would suggest that you procure separate samples, from different portions of the face of your pit, and submit them to a competent ceramic chemist for analysis. Your whole object, in my estimation, is to determine: First, the location of the different clay stratas and then work them entirely separate from one another, because the blending of clays with extreme shrinking tendencies always proves disastrous, while worked and manufactured separately, they give in most cases good results. Why not revert to section of clay or shale pit that made first class ware, and work there until you determine where the trouble lies?—Arthur G. Bradley, manager Lincoln Clay Products, 9 Richmond St., St. Catharines, Ont., Canada.

Sees Change in Composition.

If in manufacturing a fire brick I experienced the difficulty in burning outlined in problem No. 5, I should immediately have my clay carefully analyzed. All other things being the same there must be some change in the composition of the clay. After careful study of Seger's Collected Works, "How to Analyze Clay," and the "Questions and Answers Department of "Brick and Clay Record" for the past year I might be able to perform the analysis myself, or not having time or previous experience, considering the gravity of the situation, I should probably send samples of my clay bank representing past and present mixtures to a ceramic laboratory as per answer to Iowa 272, "Brick and Clay Record," issue of Feb. 3, 1914.—A. C. Pyles, Supt. Buckeye Fire Brick & Clay Co., Scioto Furnace, Scioto County, Ohio.

Superintendent

(*Continued from page 589.*)

the other by raising the damper in the center. The kiln can be built any length required, but I find that 12 fire holes is enough for one man to take care of properly.—A. Neal, manager, Kingston Brick & Tile Co., Kingston, Ont., Canada.

Bringing Special Brick to Shade.

Arch brick and some molded brick that are burned too light in color to match the plain brick that they are to accompany, may be brought to shade without reburning, by a very simple process, particularly in the fireflashed varieties of face-brick made of fire clay. Clean the faces of the brick that are to be "doctored" with a strong solution of muriatic acid—a pint to an ordinary water-pail of water—using a wooden pail for the solution. Then, before the brick are entirely dry, go over each brick with an oil-stain, such as is used for dull finished woodwork. Put the stain on with a brush and rub it off, at once, with a piece of waste. If the color wanted shades on the red or deep orange, and the brick has burned out to a light buff, use a cherry or mahogany stain. If the color wanted is brown, use a "dark oak" stain, or a "mission." Be sure you use an oil-stain, not a spirit stain. Let the brick dry, and, if the color be too light, repeat the process. Brick treated in this way will hold the darker color for many years and, while the process takes a little time and some expense, it beats holding up the job for five or six weeks, which would be the case if the brick had to be burned over again.—D. W. F.

An Automatic Dumping Car.

George J. Walter, the Chatsworth, Ill., brick and drain tile manufacturer, relates how he overcame lime pebble troubles. The pebbles were of such a size they slipped through the crusher and thus into the augur and out through the die. Probably ten or fifteen tile came out before any good ones would appear. The latter would, apparently, be all right but after being exposed to the weather some of them cracked and crumbled, Mr. Walter losing about 10 per cent of his product. "I purchased a dry pan," said Mr. Walter, in telling of his experiences, "and had the mullers raised sufficiently high to prevent them from crushing the pebbles. I then ran the clay from the dry pan to a revolving screen with one-eighth perforations. The clay went to a storage bin which held enough material for a run of one hour or two hours. This gave us a chance to clean out the dry pans without stopping the machine. Of course we had efflorescence but as we only make common brick and drain tile this does not bother us." One of the chief reasons Mr. Walter does not make face brick, undoubtedly, is because of his efflorescence, as we happen to know that he imports considerable face brick for local jobs, and he might just as well be selling his own product. Even efflorescence on tile or common brick is a detriment and it looks as if he could eliminate the pebble trouble entirely and thus produce a more marketable product.

Overcomes Lime Pebble Trouble.

The prize idea by A. R. Foxley, on Clay Haulage which appeared in the Jan. 6 issue, looks good where dumping the cars is to be done in one place, but where the clay is to be stored, or where more than one pan is used it would not

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Modern YARD SUPPLIES

Soft-Mud or Stiff-Mud Processes
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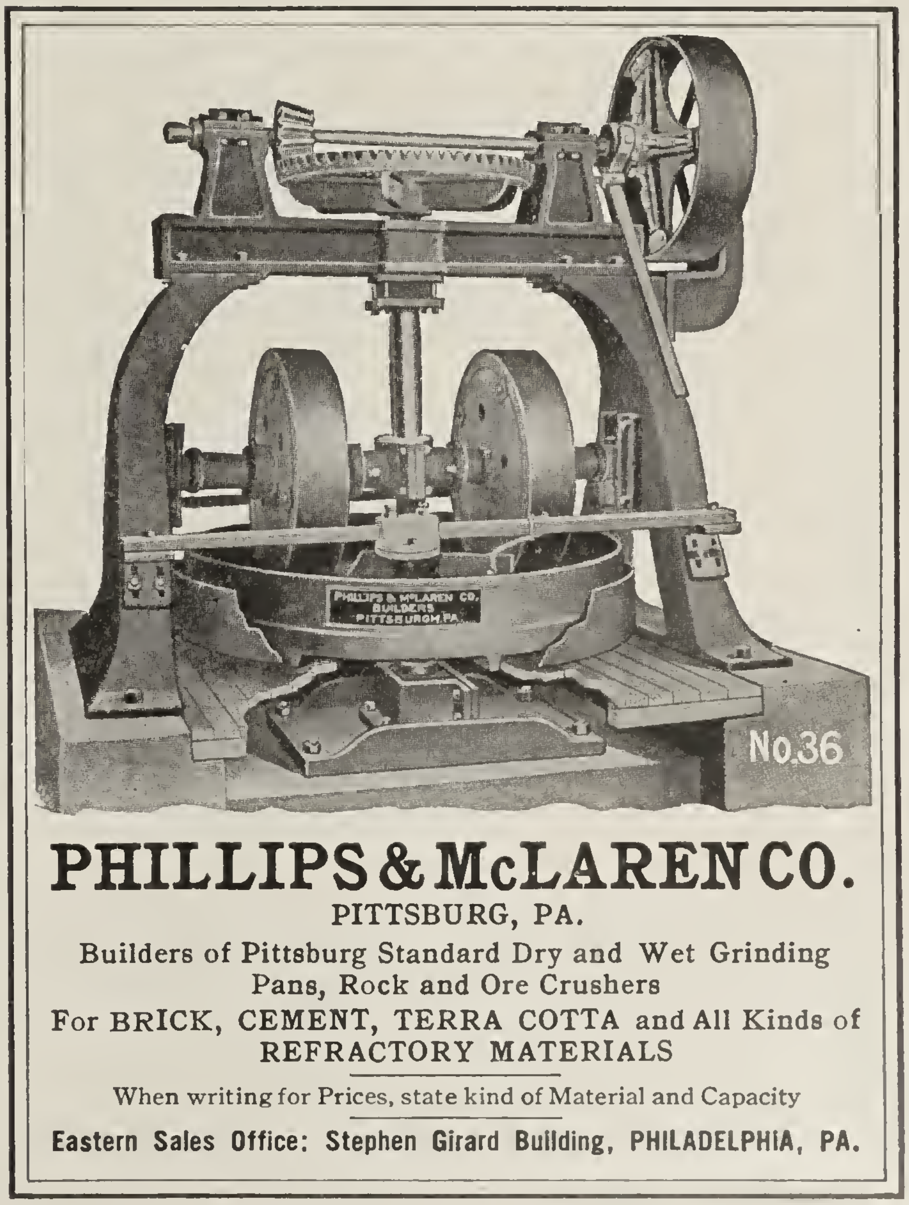

No.36

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PITTSBURG, PA.
Builders of Pittsburg Standard Dry and Wet Grinding Pans, Rock and Ore Crushers
For BRICK, CEMENT, TERRA COTTA and All Kinds of REFRACTORY MATERIALS
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Eastern Sales Office: Stephen Girard Building, PHILADELPHIA, PA.

How much of your loss is due to off-shade burns?

Do you know what makes them off-shade?

Are you sure it is not the clay?

It may be that your clay is not properly mixed—that lack of uniformity starts at the dry-pan and carries through to the stock shed. Get a correct start with

The Rust Clay Feeder

MARION MACHINE FOUNDRY & SUPPLY CO.
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Chase Improved Flexible Bearing Folding Deck Dryer Car

See this car before placing your order.
We also manufacture a full line of Side Dump, Bottom Dump and General Purpose Cars, Transfer Cars, Turntables, Switches, etc.

The Chase Foundry & Mfg. Co., Columbus, O.

be so practical. I am enclosing a pencil sketch of a car and track which can be used where the clay shed is to be filled or clay dumped to two or more pans. The outfit is automatic in action and under the control of the operator. The track is the usual incline with any kind of a drum and cable hoist. An extra rail is placed outside of the regular track starting low enough for the wheels on the car bed to catch; this rail runs upward with sufficient angle to raise car and bed high enough to cause the clay to spill out as car moves. As the car is pulled forward these wheels raise the bed, slowly enlarging the opening and increasing the angle of the car bed. The clay will be spilled out along the entire length of the rails. This car can be made of wood or steel and any size. The bed sits flat on the car body, making the car very low and rigid. The outfit can be used for steam shovel or hand digging. The bed of the car is hinged to the car body at the point marked in sketch. The body of the car is made sloping on the dumping side of car and the door is stationary. When car starts to dump the bed leaves the door. The dumping angle will have to be arranged to suit the kind of clay handled. If the clay is wet the angle will have to be greater, of course. The wheels on car bed are set on a pivot so that as the bed raises the wheels remain upright. These wheels must be set on the car bed so that they will conform to the angle of the dumping rail, both ends of the car bed thus lifting together. If this rig is put up right it will work fine and put the shale where it is wanted. J. C. K., West Terre Haute, Ind.

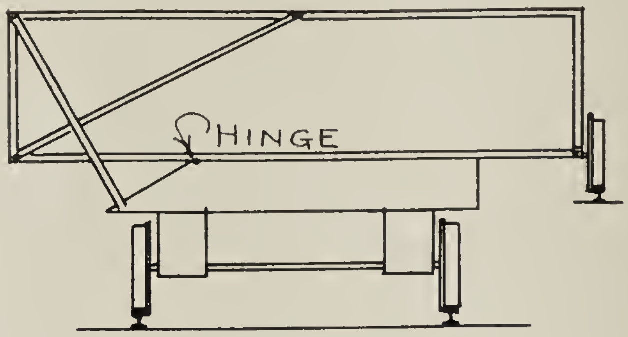

FIGURE 1

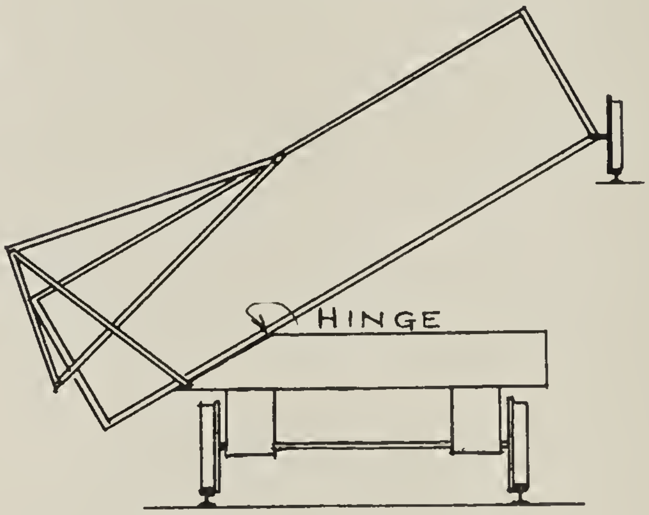

FIGURE 2

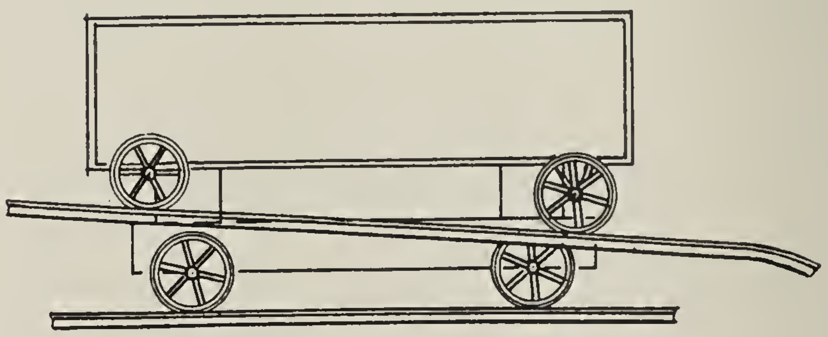

FIGURE 3

Trade Reviews

NEW YORK.

BY ALLEN E. BEALS.

Special Staff Correspondent.

The month of February, 1914, will go down into Eastern clay products history as a model of extremes. It opened with a fair demand, dropped to a negative level and closed with a movement far in excess of any month in half a year. The first week showed a lame inquiry on future deliveries, the middle part developed hardly any inquiry while the last week brought out an inquiry for late March, April and May deliveries that leaves little doubt in the minds of manufacturers that moderately better times are to be features of 1914 than was the case in 1913.

At the same time there is still an undercurrent of hesitation. Business is not conducted as freely as wont. Contracts are of the restricted kind from common brick to architectural terra cotta, but the inquiry is for freer quantities, which is looked upon as a good sign.

Unusual weather conditions were, in large measure, responsible for this sluggishness. The city requisitioned 45,789 trucks for the last two weeks in the month to remove snow that was paralyzing the business of the community. Under such conditions trucking contractors found it more profitable to use their equipment for city work than to attempt to ride material through almost impassable streets when exterior construction was hampered, to say the least. In consequence only about 537,000 common brick were unloaded in the entire city of which 358,000 was ridden by the Greater New York Brick Company, whereas normal for a February week would be something like 4,000,000. Portland cement, instead of riding approximately 12,000 barrels actually represented on deliveries less than 1,000 barrels. Lumber was at a complete standstill. Steel could not be moved at all and the Building Trades Council reported more than 87 per cent of skilled exterior building labor unemployed for the ten days succeeding Saturday, Feb. 14. The movement of fireproofing material during that time was considerably better than common brick reported because this material could be laid with the aid of salamanders in enclosed buildings, but deliveries were uncertain and little progress was made. Practically no face brick was handled for ten days after the snowstorm.

An impetus was given the consumption of common brick in this market, especially in the subway construction work by an order issued by the Public Service Commission of the First District rescinding its resolutions adopted April 8, 1913, declaring that the work of laying brick in asphaltic mastic is bricklaying and directing that subway contractors employ bricklayers in laying brick in that manner.

This was a case where there was grave danger of a substitute material being employed in lining the subway because it entailed the employment of skilled bricklayers at $5.70 a day for laying brick in a mastic whereas unskilled labor could be used in laying up concrete.

The construction outlook in the metropolitan district which comprises the five boroughs of New York, five counties in east New Jersey and Westchester county to the north, is, according to the mortgage market about on a par with the opening of 1912. In the first seven weeks of 1912 the district reported 8,065 mortgages valued at $78,000,000 while the first seven weeks in 1914 shows 8,127 mortgages recorded valued at $76,817,333. Of this total assigned mortgages in the first seven weeks of 1914 represent 39 per cent while the percentage of assigned mortgages in 1912 for the same period was 33.5 per cent, in this respect reflecting the tightness of money this year. Under such circumstances it is apparent that the building movement is showing more strength on prospective work than the Eastern market has hitherto been given credit for. Incidentally it shows the fallibility of statistics of building plans filed in proving or disproving the rise or fall of building activity.

Clay products prices in the East are being held firmly, which is considered another good sign of a strengthening inquiry. Incidentally stocks are well in hand with dealers and distributors carrying little reserve except in the case of conduits and flue lining. In the Newark territory the demand for burned clay products is a great deal better than it was in the Fall and, in consequence, dealers have stacked more generously than have their friends of the city. Westchester is planning for a big building movement and the same is true of Queens. Since last July approximately $115,000,000 has been loaned on bond and mortgage, about 65 per cent of which will go into construction work between now and the close of the first half. This is considered a large engagement when it is recalled that mortgage interest rates have been well around 6 per cent, which is abnormally high. For the year ending July 1 last year $325,879,211 was loaned with the average interest rate between 4½ per cent and 5 per cent. Which also shows that better things are in store for burned clay interest than building plans statistics show.

Brick is plentiful and prices range about $6 to $6.50 nominal although actual selling figures are far below that level. On February 26 there were 79 barge loads or 27,650 brick in the market on covered and uncovered barges whereas there were 93 barges or 32,550,000 Hudson brick. There were on that date approximately 10,000,000 common brick lying about the market awaiting riding orders in dealers' hands.

The outlook is for a gradual recovery in the movement of burned clay products in this market. There will not be much fluctuation in the price of brick or any other material in the

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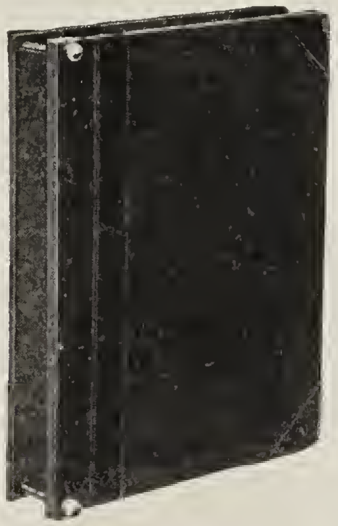

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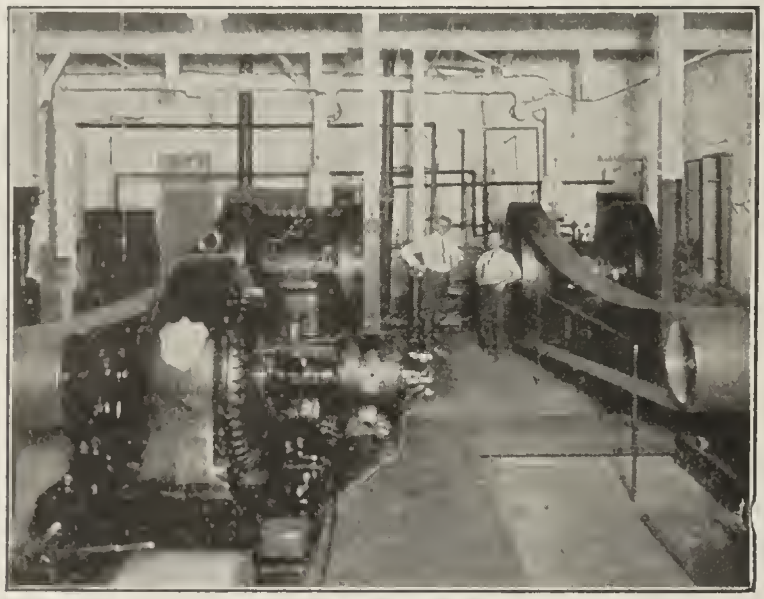
BRICK AND CLAY RECORD
445 Plymouth Court CHICAGO



Why Cling-Surface-Treated Belts Pull Best

Robert Thurston Kent tells why in his article, "The Pulling Power of Slack Belts," in Industrial Engineering, May, 1913, issue. This article was based upon experimental research with untreated and Cling-Surface-treated belts. Ask for a copy of his report.

Cling-Surface and the direct and indirect economy improvements are now receiving more serious attention than ever from prominent scientists.

The photograph of Cling-Surface-treated belts shown is but one of hundreds with accompanying data which we have to prove the lasting benefits.

Cling-Surface stops slipping, waterproofs, reduces friction, and permits belts and ropes to run easy or slack.

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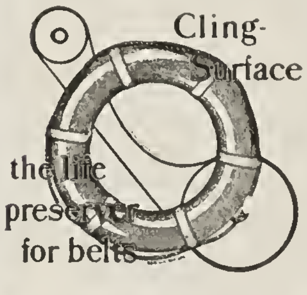
Cling-Surface
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Good horses are expensive; so is feed. You want to get maximum results from your equipment.

Increase the efficiency of your delivery department by adopting **Martinsburg Brick Wagons.** You can haul 1/3 more and save 20 to 30 minutes unloading and *without breaking or chipping the brick.*

If you're from Missouri—ask us.

Auburn Wagon Co.
450 Race Street
Martinsburg, W. Va.

wholesale market unless an unusual demand develops which at present does not look at all likely. The best opinion among architects is for a moderate building year, moderate prices and a supply well under control.

KANSAS CITY, MO.

BY MURRAY E. CRAIN.

Special Staff Correspondent.

The brick and clay industry has been seasonably quiet in Kansas City during the past two weeks, more Winter having been crammed into that period than the several months preceding. Most of the brick plants have closed down pending milder weather, and incidentally to allow repairs in anticipation of capacity operations a little later. Comparatively little building has been started, most of the work being held back for more favorable weather.

Despite the fact that little actual building work was begun recently, building permits both for February and January exceeded in volume those for the corresponding months in 1913 by a comfortable margin, a most favorable development for the brick and clay industry of Kansas City. Exact figures for February have not yet been compiled by the building officials, but those for January show a gain of $250,000 in value over January, 1913. A good percentage of the work will be of brick or terra-cotta.

Contracts promoted recently by the Western Paving Brick Manufacturers' Association have been small ones, as a rule. Secretary G. W. Thurston reported, however, a number of larger ones pending. They will be closed in the immediate future. Included among those recently handled by the association is a contract calling for 85,000 square yards of three-inch vertical fibre at Hutchinson, Kan.; 8,000 yards at Kansas City; 6,000 yards of No. 1 standard blocks at Lincoln, Neb.; 4,000 yards at Sac City, Ia.; 3,000 yards at Webster City, Ia., and 4,000 yards at Wichita, Kan.

While the Kansas City plant of the Hydraulic-Press Brick Company has been closed down for repairs recently the city office has continued to corral a number of orders of importance for delivery as soon as the weather clears. The residence of C. S. Keith, a millionaire coal operator, is among those which will be of face brick provided by the Hydraulic office, about 75,000 being required. The same company will deliver 100,000 face brick for the new St. Regis Hotel, on which work is well under way. The Omaha branch of the Hydraulic, managed by R. W. Beasley, is providing the face brick for the new million dollar hotel going up in that city.

A. G. Bodwell, new manager of the Kansas City branch of the Kansas Buff Brick & Manufacturing Company, is making radical changes in the offices in the Reliance building. Mr. Bodwell believes that the display rooms of a sales office should be 100 per cent attractive. He recently decided on a change of the style of the brick used in his office, and bricklayers have had charge for the past few days as a result.

The Prospect Avenue Improvement Association recently met and adopted resolutions protesting against the extravagance of the city administration in regard to the paving of Prospect avenue from Thirty-ninth to Forty-seventh street. The street was originally paved with asphalt and is in bad shape despite numerous repairs.

The brick and clay industry of Kansas City grew nervous recently when a repetition of the labor trouble of 1913 was threatened for a few days. The disagreement, however, was quickly settled and there now appears to be no likelihood of any further trouble. Union men demanded that union labor be employed on the wrecking of the John Taylor Dry Goods Company's building. This was finally acceded to, and the work of razing the structure will be rushed through. A terra-cotta building will be erected on the site.

Percy Winston Rochester, a clay pipe manufacturer of Portland, Ore., died there recently, according to information received by Kansas City members of the trade. Mr. Rochester formerly was in business in Kansas City, though at that time he was in the chinaware trade, his advent in the clay pipe business being after he had gone to the Pacific Coast.

An operation which attracted great interest in Kansas City brick circles was the moving of the 1,600-ton brick building used as the Grand avenue depot for several railroads. The structure was moved 100 feet north and 70 feet east of its old location. The structure is three stories in height. The removal was accomplished safely and is regarded as a feat of some consequence.

The Liberal (Kas.) Stone & Brick Company recently purchased a 118-acre tract of land in Kansas City. Just what the company's plans are is not known. The property is located near the Standard Oil Company's refinery, and cost the Liberal concern a trifle less than $100,000.

Good progress has been made on the new plants of the Vale Brick Company, despite unfavorable weather recently, according to president George C. Stephens. The plant will be put into commission about April 1, and will begin with an initial capacity of about 75,000 common brick daily. The new plant will cause no change in connections of the Bryant Supply Company, of which Mr. Stephens is manager. The supply company will continue to place common brick for its present companies, and all of the present agencies will be retained.

City officials of Topeka, Kan., have decided to build a pipe line to Gage park, by way of the Topeka Brick Company's plant. The extension of the line will give the brick company added facilities, which will enable it to work more efficiently.

The Norman Clay Tile Company, of Nevada, Mo., is erecting additional kilns, and adding 400 feet of track to its dryer capacity. The rapidly increasing trade on clay silo blocks has made these improvements necessary.

SAN FRANCISCO, CAL.

By ALLEN PRESS.

Special Staff Correspondent.

Business began to pick up a little during the first half of February, when builders took all possible advantage of a fortnight of fair weather and rushed through quite a lot of small work. Renewed storms, however, have held current business almost at a standstill for the last week, and while some figuring is being done for Spring construction, there is nothing resembling activity in any line of clay products. The soft-mud plants will not be able to start for at least six weeks, and the unusually heavy rain is hampering manufacturing operations at some plants that commonly run the year round. Business is completely tied up in southern California this week, as many districts have been practically flooded, and rail communication was interrupted for a time. On Feb. 20 it was reported that electric power service around Los Angeles was entirely cut off.

Some hope has been expressed of a revival in the sewer-pipe business this year, but so far only a few small contracts have been let, and with many manufacturers anxious for business, prices have been cut to an unusually low level. There are a good many municipal projects in prospect, but it is by no means certain as yet that the demand will be equal to the output.

It begins to look as if the California Brick Company's plant at Decoto, Cal., which has been operated intermittently and with little success under various managements for some years past, would soon be placed on a profitable basis. During the last few months the plant has been completely remodeled, under the management of C. E. Fuller, who was for some years manager of the Buffalo Paving Brick Company of Buffalo, Kansas, and the company has lately opened a sales office in the Phelan building, San Francisco, in charge of L. R. McKenzie, an experienced brick salesman from the Middle West. A lot of new machinery has just arrived at the plant, including an improved auger machine designed for paving brick, and the installation will be completed in the few days. Two new dry-pans have been installed, and a well-equipped laboratory, with a complete set of recording instruments, has been added. The principal addition is a large continuous kiln, containing 72 sixteen-ft. chambers, with a capacity of 100,000 pavers per day. A flue has been built to take waste heat from the kilns to the drying tunnels, which were built last year, and a lot of handling machinery has been installed, including a 10-ton traveling crane in the building and another in the yard. The plant is equipped to produce a large variety of materials, including hollow ware, etc., but paving brick is to be the specialty, as there is a rapidly growing demand for this material in California. The company is assured of its ability to produce satisfactory pavers, as several test lots have been laid and are giving satisfactory service, and the company has already been figuring on several municipal projects.

The California Denison Block Company is evidently preparing for a large business all over the state, as arrangements are being made for the production of this material on a big scale at several points. It now develops that Denison blocks will be the product of the Pacific Coast Shale Products Company, recently incorporated, which is preparing to build a plant at Porterville, Cal. J. B. Phillips, who has been in charge of the Carquinez Brick Company's plant, which will also make Denison blocks, has been at Porterville lately working out the details of the proposed plant, which will supply the market of the southern San Joaquin valley district.

A new company is being organized by business men at Banks, Ore., with the object of starting a brick and tile plant this Spring. Drain tile and brick will be made.

DETROIT, MICH.

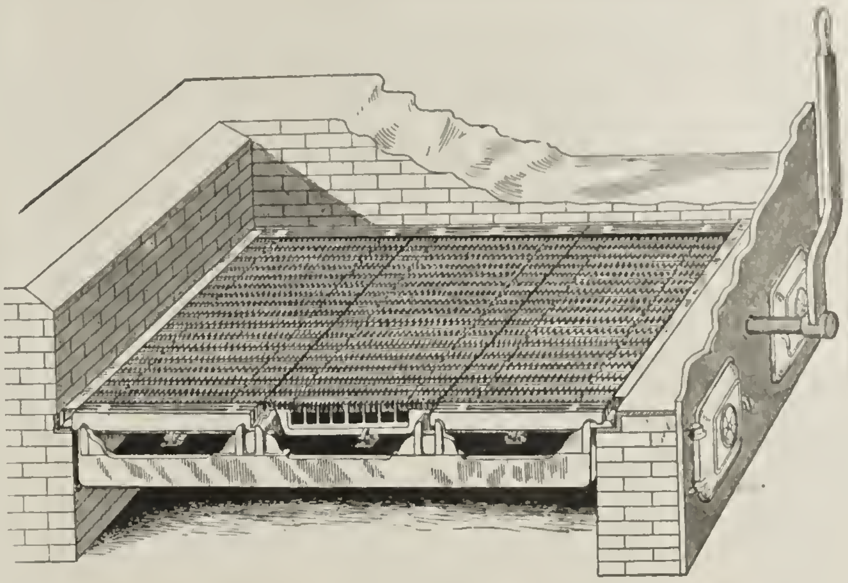
By JACOB SMITH.

Special Staff Correspondent.

The greatest optimism still prevails with the brick dealers and manufacturers regarding future business. Since the 10th of February, and up to a few days ago, Detroit has been in the arms of Mr. Zero Weather, and of course, under such conditions, no one gives much attention to building. With the recent warm spell, however, builders and contractors have kept dealers busy giving bids and assurances that they eould give prompt service when called upon to fill orders. The "Brick & Clay Record" representative happened into the office of a larger dealer and manufacturer when he had just finished a lengthy conversation with a builder. "How is business?" I asked. "Well, it hasn't been very brisk until today, but if this sun keeps shining and the snow gets off the ground, building will start right in. This man I just talked with wanted to know how soon we could supply him with brick after he had given us the order, as he expects to start building as soon as the ground loosens up, and he can put in his foundation. Since early this morning we have been answering 'phone calls and quoting prices on brick simply because a little spell of warm weather gets everybody thinking about building, whereas the cold snap 'shuts them up like a clam'."

And this is the situation exactly in Detroit today. As far as the future business is concerned, dealers and manufacturers have no doubt that it will be even better than it was last year when the proper time comes and building actually starts. Everybody looks for business to be exceedingly good and to come with a rush about the 15th of March.

Carl G. Snyder, secretary of the McDonald Coal & Brick Co. has made two trips since January first to the clay fields in



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

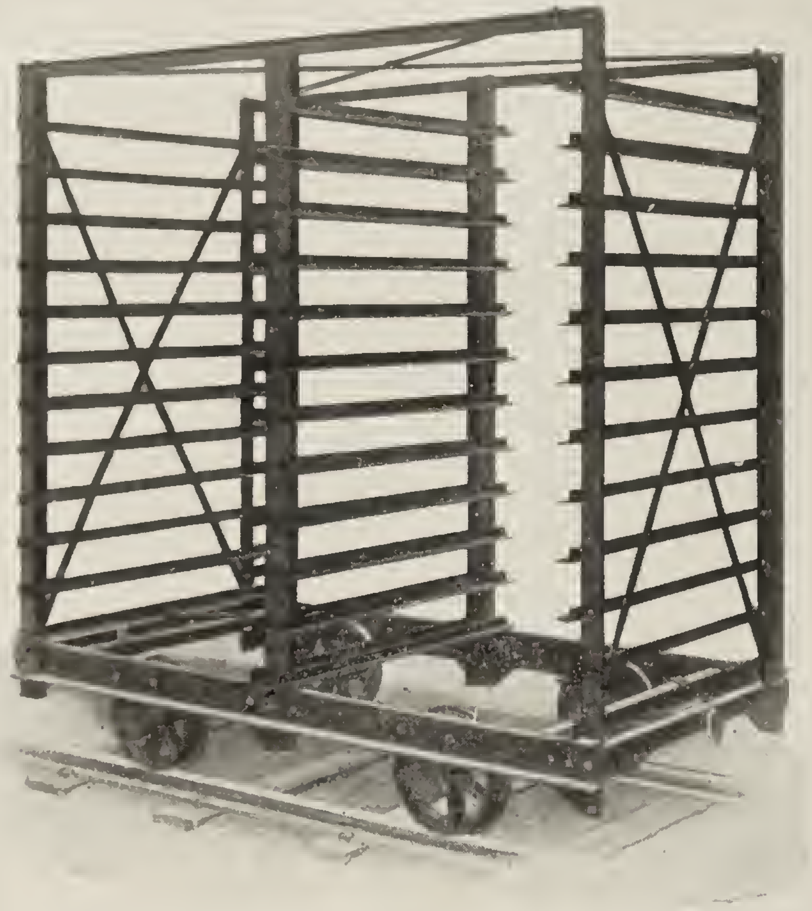
HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

The Martin Grate Co.
347 S. Dearborn St., Chicago, Ill.



Read what users of the Gerlock Car have to say

Letter No. 1.

MOUNT UNION REFRACTORIES CO.
SILICA and MAGNESIA BRICK.
MOUNT UNION, PENN'A.

Mount Union, Pa., March 25th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We are pleased to advise you of our entire satisfaction with the Steel Dryer Cars which you have furnished us during the past year—150 of these cars were delivered about nine months ago and the 30 additional cars about two months ago—and we are very much pleased with them in every respect.

Yours very truly,
MOUNT UNION REFRACTORIES CO.,
F. D. Halstead,
Secretary and Treasurer.

Letter No. 2.

GENERAL REFRACTORIES COMPANY.
Manufacturers, Dealers and Importers
SILICA, MAGNESIA, CLAY and CHROME BRICK.

BLAIR SILICA BRICK WORKS,
James H. France, General Manager.
Claysburg, Penn'a, January 16th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We have been using your Steel Dryer Cars at our plant for the past three years along with two other makes of cars, and it gives us much pleasure to state that we are assuredly of the opinion that your cars in the points of durability, strength of construction and ease of operation, are far superior to any others that we have in use here or have seen in operation at plants which we have visited. We have adopted your car as our standard and will place all future business with you, knowing from past experience that we will receive the best car at all times at the right price.

Yours very truly,
GENERAL REFRACTORIES CO.,
Per E. M. France.

Be Convinced—send us a trial order.

H. W. Gerlock
Huntingdon Pennsylvania

Ohio and Pennsylvania. He reports business with his company to be quiet, but feels confident that the year is going to be the biggest that it has been in four years. Like everybody else, the McDonald concern is stocking up so as to be ready for the promised rush which is expected to start about the middle of March, weather providing. The McDonald Coal & Brick Co. are branching out, and in addition to handling coal, and manufacturing and selling brick, they will hereafter handle a full line of builders' supplies.

By reason of the consolidation of the C. H. Little Company and the Houghton-Malcomson Company into the United Fuel & Supply Co., Detroit, with offices in the Free Press building, a complete line of brick will be kept in stock. The re-organized company is now one of the largest of its kind in the middle west.

The Flint (Mich.) Clay Products Company has been organized at Flint with a capital stock of $25,000. William Updegraff is president and general manager; William King, vice-president and superintendent; William Veit, secretary; William H. Davison, treasurer. The property formerly occupied by the Genesee Coal Co., a few miles northeast of the city, consisting of buildings and about 20 acres of land, has been taken over by the Flint Clay Products Company and affords an excellent location for the new industry. The plant will be provided with exceptional shipping facilities through the construction of a siding from the main line of the Grand Trunk Railway. It is expected that the company will be ready to begin its manufacturing operations on a regular scale of production by the first of June. Twenty-five men will be employed at the start, and the working force will be increased as the business of the new industry develops. The company will manufacture brick, hollow building blocks and drain tile.

The Perrysburg (Ohio) Tile & Brick Company has announced that it will divide 10 percent of its net profits during 1914 between all of its employes who have been with the company nine months. The plan becomes effective Jan. 5, 1915. "Our business is better under the new tariff, as the farmers find it necessary to use more tile to raise bigger crops to compete with foreign products," said J. H. Wilson, manager of the company.

The 50-foot launch, belonging to John S. Haggerty, brick manufacturer in Detroit, and worth approximately $6,000, was completely destroyed by fire on Feb. 18 as it lay in the Schweikart boathouse.

The bricklayers' union in Sault Ste. Marie, Mich., announce that its wage scale has been fixed at sixty-two and one-half cents an hour, the rate to take effect May 1st, next.

Bids for supplying the Department of Public Works in Detroit with brick for the coming season were opened on Feb. 17 by Commissioner Fenkell, and with one exception, were found to be slightly higher than were secured a year ago. In all there were 21 bidders and the Detroit Vitrified Brick Company, manufacturers of Champion block, submitted the lowest bid, 84 cents a square yard, 40 brick to a yard being guaranteed. This bid is exactly the same as made by the Detroit company last year. Other low bids were as follows: Nelsonville Brick Company, 92 cents a square yard; Puritan Brick Company, 92½ cents; Michigan Vitrified Brick Company, 93 cents; Michigan Limestone Company on "Bessemer" block, 94 cents. The F. B. Holmes Co. on "Toronto" block, was the highest bidder at $1.05 a square yard. Commissioner Fenkell states that although the advertisements called for only 1,000,000 more or less brick, he expects to buy over 6,000,000 brick and that the total cost will be about $150,000, which is about 4,000,000 less than was bought last year, due to the fact that he will increase the use of asphalt. Outside of the Detroit bid none of the other prices was lower than last year. Several were about the same and others several cents higher. The commissioner said that many of the bidders boosted their prices because they claimed that increased freight rates would make a difference of at least two cents a square yard.

Charles Doll, who will be manager of the proposed new pottery in Mt. Clemens, Mich., says that construction work on the same will probably start about the middle of April. About fifty percent of the labor at the start will be from the outside in order to get the best results.

The contract for furnishing Traverse City, Mich. with No. 1 Akron sewer tile was awarded to the R. J. Mercer Company.

The city council in Benton Harbor, Mich., has ordered plans and estimates to be prepared for the paving of Broadway avenue with brick on concrete, 30 feet wide.

Sealed bids for 20,000 sq. yards of paving brick, more or less, were received by Battle Creek (Mich.) as follows: Deckman-Duty Brick Company, Cleveland, Ohio, $23 per M; Puritan Brick Co., Detroit, 82 cents per sq. yd.; The Trimble Paving Brick Company, Dayton, $21 per M; Athens Brick Co., Columbus, Athens block, 80 cents per sq. yd.; Nelsonville block, 84 cents per sq. yd.; Detroit Vitrified Brick Co., Detroit, Champion block, 78 cents per sq. yd.; Metropolitan Paving Brick Co., Canton, Ohio, No. 1 Metropolitan wire cut lug paving block, 89.7 cents per sq. yd.; Metropolitan repressed paving block, 90 cents per sq. yd.; Bessemer Limestone Co., Youngstown, 94 cents per sq. yd., all F. O. B. Battle Creek.

John A. Qualman, president of the Saginaw Paving Brick Co. of Saginaw, Mich., of which firm he is also general manager, notes an unusual activity at this time of year among farmers throughout the Saginaw Valley section, indicating extensive building of farm houses during the coming Spring and Summer. The farmers are coming in after the brick to the company's plant, taking advantage of the sleighing to haul big loads long distances. This is taken as a good indication of the general improvement in the progress of the farmers in that particular region, as well as the building trade during the coming season.

The plant of the Ohio Brick Company in Toledo, Ohio, was damaged to the extent of $1.200 on Feb 20th, when one of the workmen in the stacks of a brick dryer dropped a blazing torch which ignited the roof and stacks. The roof and stacks of two dry kilns were burned off before the flames could be checked. The plant is located in East Toledo, at the end of the water main and firemen were hampered by lack of water.

INDIANAPOLIS, IND.

BY H. R. JENNE.

Special Staff Correspondent.

Manufacturers of brick and other clay products report the outlook in Indiana as being satisfactory, and the fact that several plants have started up during the past fortnight would indicate that the owners were willing to back up their optimistic opinions by making up stock against the Spring demand. Architects are busy with tentative plans and report the inauguration of a good building year.

Bids ranging from $13,000 to $25,000 have been entered with the Indianapolis city administration for the Fall creek interceptor. There will be 2,000 feet of sewer piping in the work.

Extensive plans are being formulated by the Gary, Ind., board of public works for the establishment of a municipal street repair plant. Brickwork, sewer-piping and other necessary municipal work is now done by contract. The proposed plant will entail an outlay of several thousand dollars.

The board of directors of the Lawhead Brick & Tile Works, Loogootee, Ind., express satisfaction over the first month's business. Usually January and February show little profit but the new brick concern is noting an exception to the rule. The stockholders met Saturday, February 21, and made final arrangements for the issue of preferred stock. Subscriptions are now being taken for a stockholders' series in the amount of $5,000, nearly all taken. Certificates will be $100 a share, non-taxable, and guarantee four per cent, semi-annual dividends. The company says its shale deposits are of the highest grade and practically inexhaustible. The cold weather stopped the work on the big brick kiln temporarily.

Clay plant officials of Clay county, Indiana, who were in a toboggan accident the other day, will be on the sick list some time. Walker W. Winslow, part owner and superintendent of the Indiana Paving Brick works, James Campbell, bookkeeper, and Samuel Moore, Indianapolis, salesman for the Hydraulic Press Brick Company, were in the tobaggan which hit a tree stump near Brazil. Winslow's right leg was broken. Campbell's ribs were broken.

"Jersey" Weir, former Hartford City, Ind., man, is in Chio equipping glass company plants with his reversible clay pot. Mr. Weir is in the machine window glass manufacturing business. Weir conceived the idea that he could defeat the reversible pot patent held by the Hartford City American South Side plant, by raising it and then turning it. He obtained a patent. His pot is replacing the removable bottom, "mushroom" pots. The Weir patent, clay men say, has so disturbed the American company that suit for infringement is being threatened. Should trouble result it is believed Weir will have the backing of the concerns who are using his pots.

CHICAGO.

BY WARFIELD WEBB.

Special Staff Correspondent.

The month of February made a record so far as the cold weather was concerned, and put a stop to practically all construction work under way, as well as slowing up some that was contemplated. The prospects are that there will be little real activity until the second or third week in March.

So far as orders are concerned there seem to be few in evidence, but it is believed that the delay is temporary, and that the feeling of confidence that seems to pervade the financial district will result in real business early in the Spring.

The yards are tied up and not a wheel is being turned, but there is a fair stock of brick in the sheds—ample to care for all the demands that will materialize, before manufacturing is again begun.

Recent transfers, and added to these plans for improving the property, indicate a new move in two sections of the city that will do much to advance these localities in a business way. These are in the immediate south and west sides of the city. Some years ago when the Chicago and Northwestern railroad company built its magnificent terminal at Madison and Canal streets, there was an awakening in a section of the city that had been for years an eyesore. Since that time there has been a steady improvement, and the erection of more buildings of the "skyscraper" order, is announced as a Spring project.

Death has claimed a pioneer brick manufacturer in the person of Alexander Burke, who died several weeks ago. Not only was Mr. Burke an old timer in the brick industry here, but for years he was also one of the leading building contractors, doing much of the work to upbuild and make Chicago a greater city. He was active in this industry for twenty-five years. Mr. Burke was born in County Cork, Ireland, June 5, 1842, and came to America when he was a boy. Later he came to Chicago. In 1874 he established the Alexander Burke Brick Manufacturing Co., and it was operated until three years ago when it was purchased by the Illinois Brick Co The plant was located at Nineteenth and Fortieth avenue. He was the father of eleven children, all of whom survive him. The funeral was held from the family residence.

Drying Tile with Waste Heat in a Small Yard

MANY people do not realize the amount of heat available in cooling kilns. A small yard containing only five small 24 ft. kilns were using steam for drying.

They installed a

Sturtevant
(REG. U. S. PAT. OFF.)

Waste Heat Drier

over a year ago. They fully expected to use an auxiliary furnace part of the time when they did not have a cooling kiln available. They have not had a time when they did not have ample heat to dry their tile, their saggers and their clay. And they are drying in 12 hours instead of 36 hours.

The small plant can get the advantages that the large plants are enjoying.

Waste heat is not only heat from kilns. You have exhaust steam which could be used. You have boiler gases.

If you have a steam pipe kiln, we can increase its capacity 40 per cent. to 50 per cent. at a very small outlay. Just consider if the circulation of air in your driers is perfect·

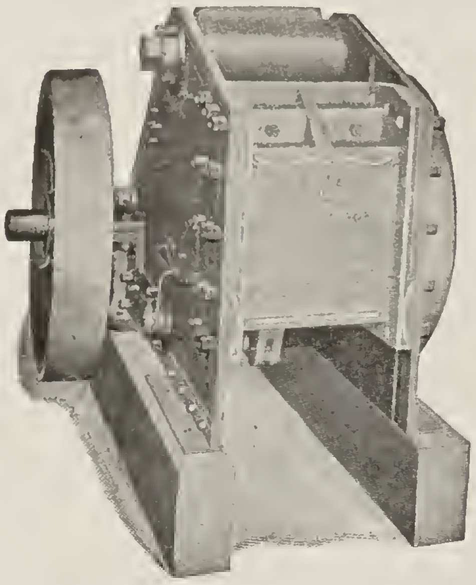
All these questions are clearly discussed in Bulletin 202-S on Drying Clay products, which will be sent free on request.

It certainly won't hurt you to know what others have patiently worked out. Send for it today.

B. F. STURTEVANT COMPANY
Hyde Park, Boston, Mass. **and all principal cities of the world**

BRICK & CLAY RECORD

SAVING IS PROFIT



But it never pays to try to save with inferior equipment.

In this age of competition the progressive manufacturer of brick or clay products will equip his plant with every possible device for saving labor and money.

A good rock crusher is such a device. It will save the cost of sledging shale, fireclay or other hard materials. It will save wear and tear on the dry pan by furnishing a small, equal sized product. It will save power in operating the pan.

Why not install a crusher on trial? The Champion Crusher is used by hundreds of brick manufacturers. It is a satisfactory machine.

Our catalogue is free. It will place you under no obligation whatever to write for it.

THE GOOD ROADS MACHINERY CO.

Kennett Square, Pa.
Pittsburgh Office: 1632 Oliver Bldg.

The Chicago Fire Brick & Retort Co. finds the situation so far as its business is concerned, to be very favorable. Charles Reed, president of the company, was optimistic and was sure the year would prove a profitable one for his company.

The good work that is being done by the Paving Brick Publicity Bureau, as noted by Mr. Hansen, the manager indicates what can be done by any live work that is undertaken to boost the brick industry. There have been a larger number of brick streets laid in Chicago since the inauguration of this bureau than was the case for many years previous.

C. V. Curtis, of the Curtis Brick Co., counts on a big year in building construction here, and is satisfied that the orders when the weather opens will be ample to make good business for the brick industry. There are ample brick to meet present demands and the yards will be started up as soon as the Winter is safely over.

The reports at the office of the Wm. E. Dee Clay Co., give every assurance of a nice demand for clay lines manufactured by this organization. Sewer pipe, flue linings, coping and kindred commodities are the specials made, and the situation promises well for all these and others.

F. W. Lucke, the paving brick specialist, is pleased with what he terms an interesting outlook for the year and says that all that is needed to make the year a good one, is to make prosperity by talking it.

Terra cotta promises to be in better demand than ever before, judged by the reports given out at the office of the American Terra Cotta & Ceramic Co.

The new face brick concern, the Kimbell-Hill Brick Co., has nearly completed its display and salesroom, on the third floor of the Chamber of Commerce building. The "Lizarb" line is being featured.

ALABAMA AND GEORGIA.

BY E. L. PATTON.

Special Staff Correspondent.

Prospective forecast for the year 1914 indicates that the Birmingham district will continue the building boom which marked 1913. That many of the new structures will be of substantial nature, brick being the principal material used, shows that the building idea has become one where permanency is of supreme importance. With these prospects in view the brick business should be good for the year just beginning.

Eufaula, Ala., is to have two fine brick churches, one a Methodist to cost $25,000 and the other the St. Stephen's Episcopal church. Lawley, Ala., is to build a $11,000 school building. Greensboro, Ala., is to construct an office building of brick and reinforced concrete. Mobile, Ala., a large two story store of brick and marble as well as several smaller brick stores. Tuscaloosa, Ala., is to have a Methodist church to cost $40,000 or $50,000. Dothan, Ala., a theater of brick and glazed terra-cotta to cost $10,000.

Confirmation of the sale of Sibley-Menge Brick Company has been made and the property brought $175,000. It was bid in by Crawford Johnson. It is understood that the buyer bid in the property for W. C. O'Farrell. The company has been conducted as a going concern under the court supervision of the referee, with Edward Hiller as trustee. Mr. Hiller conducted the sale. The properties consist of a large brick plant and coal mines at Sibleyville, near Warrior, in Jefferson County, and are one of the largest holdings of the kind in the county. At the time of the appraisal of the properties, a statement was made that the bankruptcy petition was caused by a temporary financial embarrassment, and the concern will most likely be continued under the new owners.

A new soil pipe plant costing $75,000, will be built in Gadsden within the next sixty days. The organization of the new company is going forward rapidly, Gadsden and Birmingham men furnishing the capital. John Birdwell, who has been connected with the soil pipe industry in Gadsden and Birmingham for twenty years will be general manager, and have charge of the construction. T. G. Carlisle, formerly of the Coosa Pipe and Foundry company, also will be with the new company.

Geo. P. Garrison, Bloomington, Ind., proposes to operate the Lacock brick plant at Tuscaloosa provided $2,000 is furnished him locally.

Frank B. Thompson of Jacksonville, Fla., is examining the pottery clay around Shiras, a small station of the L. & N. railroad, with a view of opening a pottery there.

W. E. Dunwoody, president of Standard Brick Company, of Macon, Ga., said: "As to the brick business, I expect the business in 1914 to be an improvement on 1913, and I am glad to say that our people are beginning to pay more attention to the quality of the building material used in the construction of their homes and public buildings, and that they are realizing also that they can now afford to pay more attention to the appearance of their structures. This is shown by their realization of the benefits of and even necessity for the assistance of architects, and by the increased use of face brick. There was a time, of course, when the use of face brick was very expensive and well nigh prohibitory on account of the fact that no high grade brick were manufactured in our own state, and the man who wished to use face brick had to purchase them from Washington or Philadelphia. Now, however, we are manufacturing in Georgia as high grade face brick as is manufactured anywhere in the United States, and our people are realizing that the beauty and value of their buildings is much more enhanced by the use of face brick, than the cost increased."

Turner E. Berry sales manager of George O. Berry Brick Company, Columbus, Ga., says; "Indications are that 1914 will be a satisfactory business year in southeastern states. The feeling is much better than it was a year ago and indications are that a busy building season will soon open. I am informed that several nice improvements are planned for early this year in business sections of Columbus. We are now receiving inquiries from over our territory and believe that there will be a good demand for brick. We anticipate a much more satisfactory year than 1913."

PHILADELPHIA, PA.

BY E. J. BROWN.

Special Staff Correspondent.

Bad weather conditions for the past two weeks have brought building operations and all outside work to a standstill, but the general feeling in all lines of clay products is that there is enough work on the boards to warrant belief that a good Spring will be followed by a busy Summer.

One of the contracts that is about ready to start is the new 18-story building that is to go up on the site of the old Mint Arcade. Plans for this work were drawn by Horace Traumbauer, and the noteworthy feature, so far as clay products men are concerned, is that plans and specifications have eliminated wood at every conceivable point. Floors, doors, door and window frames will all be of metal or stone or concrete or burned clay. The building, it is estimated, will cost upwards of $5,000,000.

The Conklin-Armstrong Terra Cotta Company reports a good volume of advance business and an unusually large amount of figuring for this time in the year. Unless all signs fail, this company will be very busy all Summer.

O. W. Ketcham, who makes a specialty of terra cotta roofing tile and other clay products that have to be made to order, and therefore must be figured upon away in advance of the actual letting of contracts, finds the signs all right for a good year, and expresses hope that 1914 will make a new high water mark for burned clay in the Quaker city.

The natural consequence of the zero weather is the closing down of all sewer contracts, and the tying up of all deliveries on this class of material; the city of Philadelphia, however, will award some large contracts in the very near future, and dealers and manufacturers in this branch of the industry are more interested in this work than in the small business that has been stopped by the cold weather.

The annual meeting of the stockholders of the Philadelphia Terra Cotta Works, Inc., was held February 18th at the office of the company 620 Arch st., when the following officers were elected for the ensuing year: George N. Moland, president; Wm. J. Ritchie, vice-president; Charles C. Moland, treasurer; Ellwood J. Brown, secretary.

COLUMBUS, OHIO.

By J. W. LEHMAN.

Special Staff Correspondent.

The severe snowstorm which held Ohio and adjoining states in its grip for the past three weeks has had the effect of making the brick industry very quiet. Building operations were almost completely stopped and in fact there was no movement of any kind of clay products. But the outlook from every standpoint remains good and it is believed the year 1914 will be a good one as far as building is concerned.

One of the features is the excellent outlook for the paving brick business. Manufacturers and dealers in pavers of all kinds anticipate a good season as plans are being made and legislation pushed for a lot of paving as soon as the Winter breaks. In addition to many city streets, a number of highways will be paved with brick.

Building the coming season will be along genera llines. In Columbus alone several millions of dollars' worth of large blocks are projected and this taken into consideration with the dwellings and apartments will bring the grand total in the neighborhood of $8,000,000.

The suspension of operations among the four brick plants in the Shawnee district still continues. Some efforts have been made to settle the disputes between the companies and th men but so far very effort to get together have been unavailing. The men are demanding an increased wage scale and in addition a number of changes in the working conditions which the companies are not disposed to grant.

P. S. Phillips has been appointed receiver for the Hanover Red Pressed Brick Company, which has been operating a large plant at Hanover, Ohio. His bond was fixed at $10,000 and he took charge of the assets of the company at once. The suit for a receiver was brought by the Park National Bank of Newark, Ohio, on a note. It is said that the affairs of the company are in good shape.

The Petersburg Fire Brick and Tile Company at Petersburg, Ohio has started operations after a long period of idleness. Manager Peters says orders for a long time have been booked by the company .

Rumor has it that Cleveland capitalists will soon close a deal to purchase the land of the late Nelson Rogers near Corning, Ohio, and also take over the brick plant of the Corning Clay Manufacturing Company. Extensive improvements to the plant are contemplated.

That Wellsville, Ohio, is on the map, when it comes to the manufacture of desirable building brick, is evidenced by an order recently placed with the McClain Company, of Pittsburgh, Pa., owners and operators of the Buckeye and Champion plants, by the Swift Mack Company for one million brick, to be used

Inertia

The resistance to motion, we are told, is the bane of industrial progress—the inability of men to grasp fully their opportunities. But where absolute confidence reposes in the adviser we are loath to believe this can be very generally true.

Goodrich
LONGLIFE and MAXECON
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reduce tonnage costs.

The confidence in our ability to effect maximum economy and efficiency in this field of industry, rests mainly upon present and past accomplishments. These are, we feel, but the logical results of ripe experience matched with persistent striving toward consistent production.

Elevator Belt Packing
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Factories: Akron, Ohio
Branches in All Principal Cities

There is nothing in Goodrich Advertising that isn't in Goodrich Goods

G TRADE MARK

Makers of Goodrich Tires and Everything that's Best in Rubber

Williams
Wet Clay Grinder

This is the ONLY machine that will GRIND clay and shale direct from the bank at ALL times WITHOUT CHOKING UP.

ALL ADJUSTMENTS PATENTED
The Williams is manufactured and licensed under ninety-seven separate and distinct patents.

The Only Machine of Its Character Made

The hammers are adjustable and the position of grinding plates may be changed at will while the mill is in motion. This is done by a hand wheel on outside of machine.

The Williams is thoroughly steam-jacketed both front and back, including the hopper, top and bottom of machine.

We Can Work Any Clay
That Will Make Brick

Write for Complete Clay Catalog No. 18 with List of Users and Endorsements.

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in the construction of abbattoirs in Australia and Argentine Republic. Both shipments are to be delivered aboard ship in New York city by April 1.

Charles Asper, of Asper, Adams county, Pa., will contest the sale of the Dillsburg brick plant, which was sold to John Hosfet, of Shippensburg, Pa., for $5,010. Mr. Asper was a bidder also and the property was knocked down to him at his bid of $5,005, and he with the auctioneer, retired to the office of the hotel to pay the hand money when Mr. Hosfet objected, claiming he was not through bidding, not having sufficient time. The plant was at once put up for sale again, Mr. Hosfet bidding $5, making the total $5,010, and there being no other bids he was given the property. Mr. Asper will contest the sale in the York, Pa., county court on the ground that the bidding was finished and sale concluded.

The plant of the Vigo Clay Company, located just east of Byesville, Ohio, changed hands Feb. 16. All holdings have been purchased by the Nicholson corporation of Cambridge, Ohio, which was recently incorporated with a capital of $100,000. The purchase includes the plant, which is fully equipped for the manufacture of hollow building tile and clay silo blocks for which there has been a large demand during the past year. The company is composed of Andrew W. Nicholson, John R. Nicholson, J. D. Fulton, E. M. Scott and S. W. Nicholson.

Engineer F. R. Baker of the Ohio State Board of Administration has collected considerable data, to set forth the advantages of locating a brick plant to be worked by state convicts at Jacksonville, Ohio. He recommends the location as it has large shale deposits and fuel resources.

Recent action, taken by the board of directors of the Trumbull Brick Company, of Warren, Ohio, will result in the conversion of the equipment of that company into hollow tile making instead of brickmaking.

The new plant of the Cambria Clay Products Company, at Portsmouth, Ohio, is rapidly nearing completion. Employment will be given 100 men, and sewer pipe and drain tile will be manufactured.

Arthur Roeske, of Michigan City, Ind., has been elected general manager of the Ris-clay Brick Company, a newly formed corporation which will manufacture face and common brick at Michigan City.

Machines & Equipment

Main Belting Company's New Western Representative.

The Main Belting Company, manufacturers of "Leviathan Belting" have made some changes in their far west representation, among others the appointment of Christian H. Solfisburg, who has recently assumed charge of the Seattle (Wash.) office. Born into a family of clayworkers, Christian H. Solfisburg is one of the Solfisburgs of Aurora, Ill. He is a graduate of the Aurora High School and has had the benefit of a three-year course in ceramics at the University of Illinois, as well as a post-graduate course at the Ohio University at Columbus. For the past two years, he has been busy rebuilding, modernizing and electrifying the Solfisburg plant at Aurora, which is owned by his brothers. His trip west opens a new field to him, which, with his own personality and the backing of the Main Belting Company, will doubtless prove fertile ground for the cultivation of a host of friends in the clayworking industry.

Christian H. Solfisburg.

Domestic Commerce Bureau's Branches.

Branch offices of the Bureau of Foreign and Domestic Commerce have been opened at New York, Chicago, New Orleans and San Francisco, and at these offices, the bureau's publications, samples of foreign made products, lists of foreign dealers, etc., will be on file. The New York office will be Room 315, United States Custom House; the Chicago office, Room 629, Federal Building; the New Orleans office in the the Association of Commerce building and the San Francisco office, Rooms 76 and 78 Appraisers' Stores building.

Ohio Plans State Brick Plant.

The Ohio state board of administration is now planning to erect a huge brick plant somewhere in southern Ohio, either in Athens, Hocking, Perry, Vinton, Jackson and some other nearby county. It is proposed to work about 150 convicts in this plant and to have an output of 100,000 bricks daily. A stockade will be built around the plant. Cheap fuel and the splendid clay veins in the Hocking valley district appeal to the state. It is claimed that private brick makers have all they can do to supply the city demand for paving and building material and thus when the proposed county road building starts the manufacture would be swamped and the state work delayed.

New Type of Recording Voltmeter.

The Brown Instrument Company and the Keystone Electrical Instrument Company of Philadelphia, Pa., are placing on the market a type of continuous recording instrument for use as an electrical pyrometer for recording temperature, and also as a recording voltmeter or ammeter. Great efforts have been made to produce an instrument as simple in construction as possible and of the most compact form. The case of the instrument is only 15 inches high by 8 inches wide and projects from the switchboard or wall 7 inches. The space occupied by the instrument has been largely reduced by placing the clock mechanism behind the record chart instead of to one side, and the record chart is the only part shown on the face of the instrument.

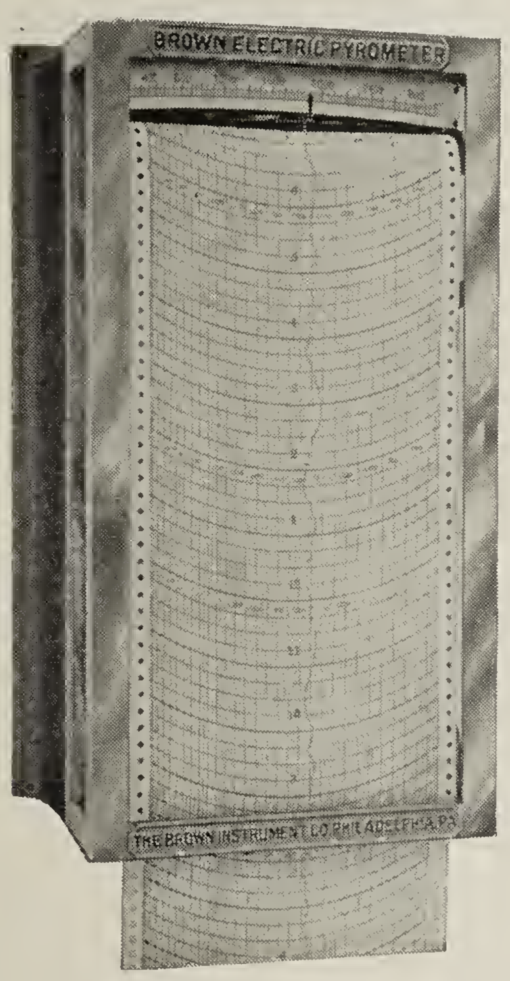

Fig. 1.

A two-months' roll of record paper is used, which can be supplied with an ink ribbon to make a dotted ink record, or the record can be made on coated paper, which does away with the use of ink or ribbon entirely. It is only necessary to wind the clock once a week and change the roll of record paper once every two months. Fig. 1 shows the complete instrument with 10 hours' record on the recording chart. One scale is placed above the record so that the indications are clearly visible at all times, and the paper has the scale printed on it for direct reading. Fig. 2 shows the instrument with the door open and in interior construction can be clearly seen. This case need only be opened once every two months to renew the roll of paper.

This new continuous recording instrument will prove particularly advantageous for use as an electric pyrometer in conjunction with thermo-couples for resistance thermometers for measuring low temperatures, or for recording volts or am-

Long Life
and
Reliable Operation

are demanded of gears in the Brick and Clay Industry.

A thorough study has been made of the operating conditions to be met in this industry, and a

Nuttall Gear

to meet your most severe requirements can be supplied.

Recommendations are gladly made for any specific proposition.

Let us know your requirements.

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The largest gear works in the world

Machine and Hand Brick Moulds

of Every Description

Write for Detailed Description and Prices

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America's Foremost Mould Makers

Wallkill, N. Y.

peres. As the d'Arsonval type of direct current instrument is used of the frictionless type to prevent lag in the readings, a particular sensitive and accurate instrument is secured. Information regarding this new instrument can be secured from the manufacturers.

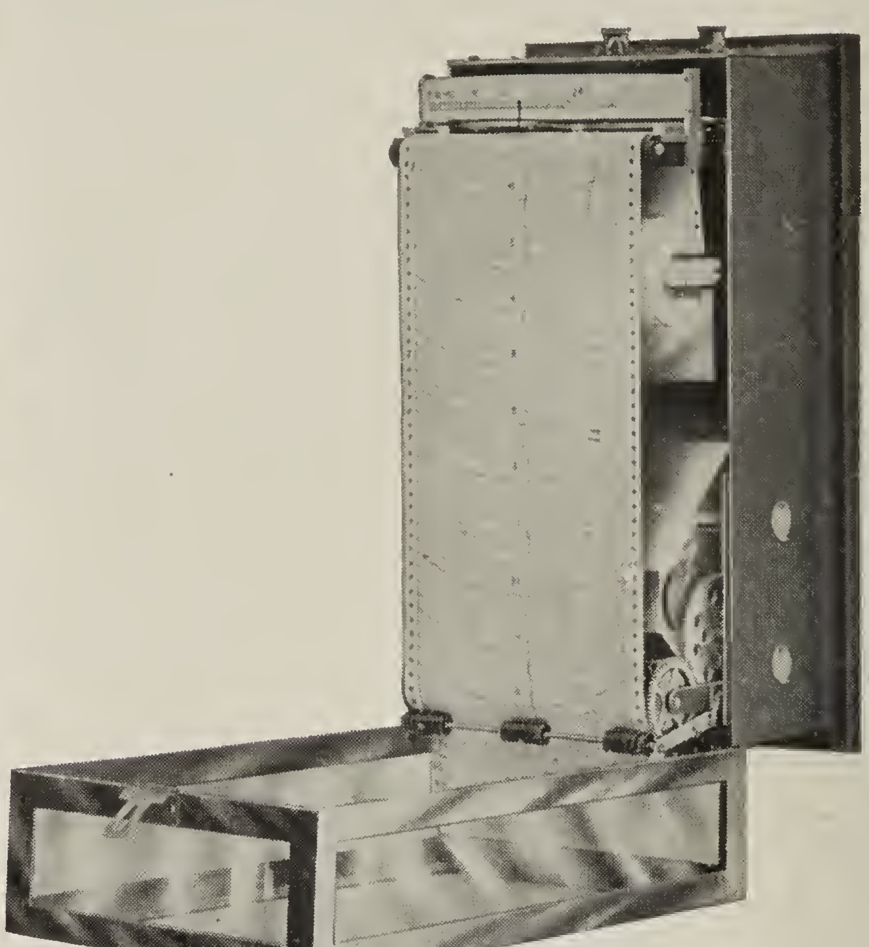

Fig. 2.

POINTERS FOR MACHINERY MEN.

R. E. Gilmore, architect, Box 417, Post, Tex., wants information, catalogs and prices on full equipment for a brick, tile and sewer pipe plant using electric power.

The Lebanon (Ky.) Brick & Tile Co. has been organized by T. M. Estes, R. L. Goodwin and Lee Goodwin. Capital stock, $5,000.

The plant of the Texarkana (Tex.) Brick Company was damaged by fire on January 23rd. The loss is $7,000, with no insurance.

Peter Munson, of Munson Brothers & Co., Capron, Ill., manufacturers of brick, building block and drain tile, is interested in steam shovels.

The Bay City Mfg. Co., of Bay City, Mich., has filed articles of incorporation, Louis Hine, William J. Lambert and Adam Schepper being incorporators.

John H. Mercier, Charles H. Bryan and Joseph Larkins will erect a $100,000 brick plant on the old Miller farm, Miller road and the M. C. R. R. in Detroit, Mich.

The Spencer Mountain Stone & Brick Company, of Charlotte, N. C., will start rebuilding at once. The property was damaged by fire the latter part of January.

Eugene Baker, of Huntingdon, Ind., is negotiating for property at Grand Ledge, Mich., upon which he proposes to erect a plant to make hollow tile for silos.

It is reported at Huntington, W. Va., that plans are under way for the organization of a company which will establish a brick plant on the Ritter lands, east of Guyandotte, W. Va.

The Foster interests at Bradford, Pa., have purchased another plant site in the Kittanning (Pa.) district, and will build a 60,000 capacity plant at Tarrytown, Pa., across the river from Cowanshannock.

The erection of a new building by the Federal Clay Products Company, of Mineral City, Ohio, and the installation of a new 1,000 h. p. power plant is expected to be completed by May 1st. The cost will be close to $100,000. J. I. Davy is secretary of the company.

The Boston-Berkshire Composite Brick Company is to take over the Berkshire Glass Sand Company at Cheshire, Mass., and will enlarge the plant in that town. The new company has acquired land at Medfield Junction and work has begun on the erection of a plant there. R. A. Burget, of Cheshire, Mass., is president.

The Sumter Brick Works of Sumter, S. C., is making some additions to its equipment, including a new crusher, which will be used to pulverize bats and waste brick. It is proposed to use this material with the raw clay and obtain a better mix for rough-face brick, upon which this plant proposes to specialize.

Williams Crusher Takes New Quarters.

The Williams' Patent Crusher & Pulverizer Co. announces the removal of the general sales department to more commodious quarters, suite 1585-1588 Old Colony Building, Chicago. A cordial invitation is extended to all of its friends and customers to call upon them in the new quarters.

New Machinery Concern in Ohio.

The Toronto Foundry & Machine Co., has taken over the Henderson Foundry & Machine Co., located in Toronto, and the Tri-State Foundry & Machine Co., at New Cumberland, W. Va. The new company is capitalized at $125,000. The stockholders are all Toronto people. Both plants will be operated. Part of the machinery from the New Cumberland plant will be moved to Toronto The business for the two plants will be conducted through the Toronto office of the company.

Gerlock Books Some Large Orders.

Several nice orders have been received during the past two weeks by H. W. Gerlock, Huntingdon, Pa. Among which were one from the Mount Union Refractories Co., Mt. Union, Pa., for iron and steel work for new kilns being erected, and steel trucks for hauling sand, and from the Federal Refractories Co., Alexandria, Pa., for iron work for brick kilns and steel brick moulds for standard shapes. To these were added one from the Standard Refractories Co., Claysburg, Pa., for iron dumping tables for use in dumping green brick out of moulds onto pallet, and from the General Refractories Co., Claysburg, Pa., for steel brick moulds for special shapes. Another order for steel brick moulds was placed by the Standard Fire Brick Co., of Pueblo, Colo.

Not Craycroft-Herrold Brick Company.

In the February 3 issue of "Brick and Clay Record" an item appeared relative to the "Crawford-Herrold Brick Company" of Fresno, Cal., and a letter has reached us, signed by Frank J. Craycroft, secretary of the Craycroft-Herrold Brick Company, stating that his company has nothing to do with the pottery that is about to be established at Gilroy, Cal. He adds that George D. Herrold, who formerly was connected with the Craycroft-Herrold Company is the man who is interested in the negotiations under way in the Solis district.

Freight Tariffs

A continuation of the article on the Interstate Commerce law and the responsibility it imposes on the shipper is given in this issue. The article was begun in the last issue—that of Feb. 17th.

By Sidney A. Hale.

(Continued)

The shipper is entitled to through routes for his consignments. Where several routes are available under a joint tariff, he is also given the right to direct the routing of his goods, both intermediate and terminal, subject to such reasonable exceptions as the Interstate Commerce Commission may from time to time prescribe. The carrier must also provide reasonable facilities for operating through routes and prescribe reasonable rules and regulations governing the operation of said routes. It must furnish switch connections with private side-tracks, where such connections are reasonably practicable and can be put in with safety, provided the volume of traffic warrants the construction and maintenance of such connection.

Cars must be distributed among shippers to the best of the carrier's abilities and without discrimination. Provision must likewise be made for the interchange of traffic between carriers and discrimination between connections is forbidden, though one railroad is not compelled to give the use of its tracks and terminal facilities to a competing line. The railroads are not permitted to adopt devices to defeat the continuous carriage of through freight.

The law demands reasonable regulations and practices governing all matters relating to or connected with the receiving, handling, transportation, storage and delivery of property as may be necessary to secure the safe and prompt handling of such property. Specific mention is made that there shall be rules and regulations with reference to the issuance, form and substance of tickets, receipts, and bills of lading; the manner and method of presenting, marking, packing and delivering freight; the carrying of baggage, personal, excess and sample, and the facilities of transportation.

The act also provides that the shipper may look to the initial line for reimbursement for loss or damage to freight; this is the Carmack amendment.

With the exception of timber and the manufactured products thereof and supplies for the carrier's own use, a railroad is forbidden to have any interest direct or indirect in any commodity it transports.

Free transportation, as far as the shipper is concerned, is limited to the necessary caretakers of live stock, poultry, fruit and milk.

The carrier may not disclose any knowledge of a shipper's business, except to governmental authorities, connections, or in the course of legal process.

A shipper is entitled to reasonable compensation for services

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or instrumentalities furnished in connection with transportation.

If the carrier is derelict in any of the obligations laid upon it by the act, the law gives the shipper the right to make complaint to the Interstate Commerce Commission, in whom is vested plenary powers to hear such complaint, determine the merits thereof and make appropriate orders in connection therewith. That there should be no defeat of justice through narrow construction, the law gives this right of appeal to "any person, firm, corporation, company, or association, or any mercantile, agricultural or manufacturing society, or other organization, or any body politic or municipal organization, or any common carrier." "No complaint," reads the law, "shall at any time be dismissed because of the absence of direct damage to the complainant."

This right of complaint embraces not only rates and practices in effect at the time of the filing of the petition, but also changes about to be put into effect. The Commission can, if it deem the equities of the case warrant the action, suspend any proposed advance for a period not exceeding ten months. As to all charges increased since January 1, 1910, the burden of proof to defend such advance is upon the carrier.

If the violation of the act has resulted in damage to the complainant, the Commission has discretionary powers to award the injured party reparation. In any award of reparation, it may be parenthetically noted, the Commission makes a practice of reaching the man who paid the freight.

All complaints for the recovery of damages must be filed within two years from the time the cause of action accrues.

Since the underlying purpose of the act is to secure equality of opportunity, it necessarily follows that all favoritism which operates to destroy that equality is unlawful, that it is as reprehensible for the shipper to be the recipient of unlawful gratuities as it is for the carrier to permit preferential adjustments to exist.

To obtain the needed reciprocating action of the law, Congress hit upon publicity as the instrument of accomplishment. It said: "Let there be light; make every rate, every practice of the common carrier to stand open before the whole world; the midnight tariff will fade in the blaze of the noon-day sun; the secret rate will be innocuous when it is robbed of its secrecy; the preferential practice will fall of its own weight when all may take advantage of it."

But publicity without effective enforcement would only aggravate. To avoid this, the published rate is made supreme and **on the shipper is laid the burden of knowing what this published rate is. He must know and he must pay this rate, no more, no less. This is the great responsibility the law puts upon the shipper, knowledge of the published rate and absolute adherence thereto.**

All the other specific obligations placed upon him in his relations to the carriers and the public at large are corollary to this. And from this published rate there is no escape. Its non-observance bristles with fines and imprisonments. No railroad error can excuse, no private understanding can relieve the shipper from this obligation. If a railroad misbills, that does not void the shipper's liability to pay the legal rate. This rate may be unjust, it may be unreasonable, it may be excessive, grossly extortionate, rankly discriminatory, even confiscatory of the shipper's property, but as long as it is the rate carried in the published tariffs of the carrier, the shipper must pay it and pay it in full. He has neither choice nor discretion in the matter.

Each shipment is considered a separate transaction and carriers are required to exhaust their legal remedies in the collection of their full tariff rates.

Unlimited extension of credit by carrier to shipper has, in at least one instance, been urged as a basis for indictment on the grounds of rebating.

Harsh as this principle may seem in theory; onerous as it sometimes proves in practice, it has been generally recognized as the only way in which the equality sought for in the law might be enforced. One deviation from the published rate would open the door to more. The pressure of competition between carriers, between shippers, the club of big tonnage, all would soon operate, if there were any legal sanction for such departure under the guise of discretion in the application of rates, to resurrect the very evils of which the Hepburn act was the executioner.

Nothing binds, therefore, but the published tariff.

Misquotation of rates subjects the carrier to fines recoverable by the United States, but offers no redress to the injured shipper. Effective, just regulation, and a square deal to all, carriers and shippers is possible only with some unshifting ground upon which to build.

This in no way contravenes the shipper's right to just, nondiscriminatory rates and charges. Every unjust charge, every unreasonable rate or practice is, by the terms of the statute, declared unlawful.

To properly understand the situation one must know the distinction between "legal" and "lawful": the publication of a rate in the manner prescribed by law, runs the substance of a principle announced by the Interstate Commerce Commission in the case of the Arkansas Fuel Company vs. Chicago, Milwaukee & St. Paul Railway Company, 16 I. C. C. Rep., 95, makes that a legal rate, but the mere publication cannot make a rate lawful that is unreasonable and excessive; no rate can be lawful in the sense of being immune from attack, either with respect to past or future shipments, if it be excessive and unreasonable in amount. So, if the legal rate be unlawful, the only course open for the shipper is to pay it and then seek relief from the Commission.

Granted, then, that the rate is unlawful, the Commission will fix a just rate which shall be open to every shipper alike and order reparation to the injured shipper. And that full justice may be preserved, this principle of reparation will apply to all who have shipped under the rates condemned, when such claims are not barred by the statute of limitations and when

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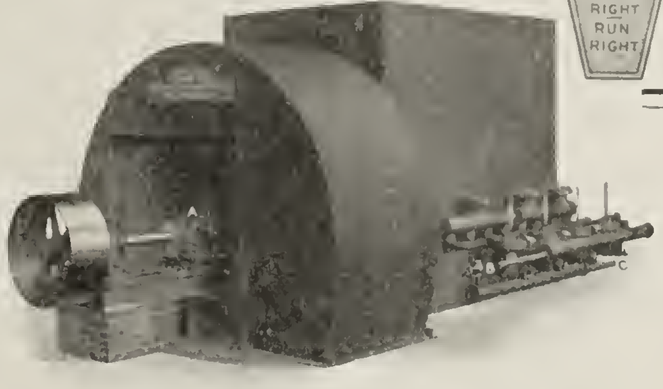
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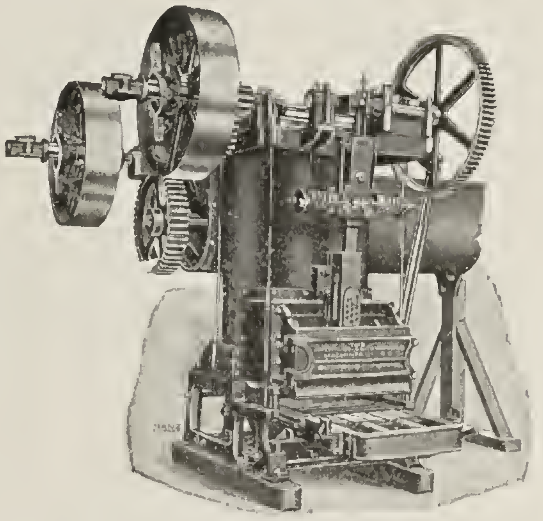

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they come within the provisions laid down by the Commission in its original rate and reparation decision.

As Congress, in the case of the carriers, was not content to rest with the declaration that all rates, charges, practices and regulations should be just, reasonable, non-discriminatory and non-preferential, but augmented the general prohibition against charges opposed to these principles by singling out special vices for special condemnation, so, too, in the case of shippers, it has not, especially in the law as last amended, stopped with the pronouncement that the shipper must pay the published rate without deviation, but has stamped illegal certain devices that experience has demonstrated had been used to defeat the spirit of the law. **Therefore, the ban direct is placed upon false billing, false classification, false weights, false report of weights, or "any other device or means" by which the shipper may "obtain or attempt to obtain transportation at less than the regular rates then established and in force on the line of transportation."** The statute runs against any person, corporation, company, or any agent or officer thereof, who as consignor or consignee, knowingly and willfully, directly or indirectly, himself, or by employee, agent, officer or otherwise, defeats or attempts to defeat the published rates. Connivance or collusion of the carrier or its agents offers no mitigation. **The attempt to defeat the rate is made equally criminal with the actual accomplishment of the unlawful project; both are declared frauds and misdemeanors and made punishable by a fine not exceeding $5,000, or, in the case of real persons, imprisonment not exceeding two years, or both.**

But the law goes still further in its check on the unscupulous. It makes the unfounded claim also a fraud and a misdemeanor, punishable by the same penalties and extending in the same way to shippers and their agents, directly or indirectly attempting to or succeeding in mulcting the common carrier by this device as rules in the case of the devices mentioned in the paragraph next preceding. That evasion of the intent of this section of the act may not be easy, the prohibition runs against those who "by false statement or representation as to cost, value, nature, or extent of injury, or by the use of any false bill, bill of lading, receipt, voucher, roll, account, claim, certificate, affidavit or deposition, knowing the same to be false, fictitious or fraudulent, or to contain any false, fictitious or fraudulent statement or entry, obtain or attempt to obtain any allowance, refund or payment for damage or otherwise in connection with or growing out of the transportation or agreement to transport such property, whether with or without the consent or connivance of the carrier, whereby the compensation of such carrier for such transportation, either before or after payment, shall in fact be less than the regular rates then established and in force on the line of transportation."

When a preferential adjustment is put under the governmental microscope, railroad officials not infrequently set up the defense that the rate or practice complained of was not the voluntary act of the carrier, but was forced upon it by the pressure of large shipping interests controlling tonnage of such volume that the transportation company was loathe to see it slip off its rails. In its attempts to safeguard equality of opportunity. Congress has taken cognizance of this condition; **it has declared that any shipper or his agent who "by payment of money, or other thing of value, solicitation or otherwise" shall "induce or attempt to induce any common carrier subject to the provisions of this act, or any of its officers or agents, to discriminate unjustly in his, its, or their favor as against any other consignor or consignee in the transportation of property, or shall aid or abet any common carrier in any such discrimination" shall be guilty of a misdemeanor and liable to a fine of not more than $5,000 or two years' imprisonment, or both, for each offense; in addition, such shipper or its agents, shall, together with the common carrier, be liable jointly or severally for all damages arising from such discrimination.**

As the carrier is estopped from disclosing information relative to a shipper's business to his competitor, so too, the shipper soliciting such information as may be detrimental or prejudical to his rival lays himself open to a fine of $1,000.

Such, in brief, are the leading requirements of the Act to Regulate Commerce as they affect the carrier and the shipper in their mutual relations. Certain sections of the law with respect to the organization of the Interstate Commerce Commission and its machinery of procedure and reports of the carriers to that body have been ignored as not germane to this article.

The effectiveness of any law is wholly dependent upon the public support that lies back of it. The Act to Regulate Commerce as it now stands is a concrete expression of the broader social sense of justice that has grown up in this country within the last few years. It is an index of an awakened business conscience, a reaffirmation of the age-old principle that you cannot build lasting success on the advantages you take of your neighbor. Many of the practices now condemned in this statute were frankly recognized less than a decade ago as shrewd business, and proof of commercial acumen.

It is more than possible, in the light of past experiences, that certain of the practices that today bear the stamp of legitimacy, tomorrow may be crossed with the bar sinister.

But, whatever the changing ideas of business morals may bring as to specific performances, it is inconceivable that there should be any departure from the fundamental purposes of equality of opportunity as expressed in this act, for on that rock is the nation itself founded. The instruments of guarantee for this equality, full publicity and strict adherence to the published rates, have proven adequate to the needs of the times. The soulless corporation is run by living men who still err as in Pope's day, who still will look at things from different angles.

The mistakes of the past have not yet been all wiped out, the sins of the railroad and industrial fathers have not all been canceled by the children and new wrongs are bound to in-

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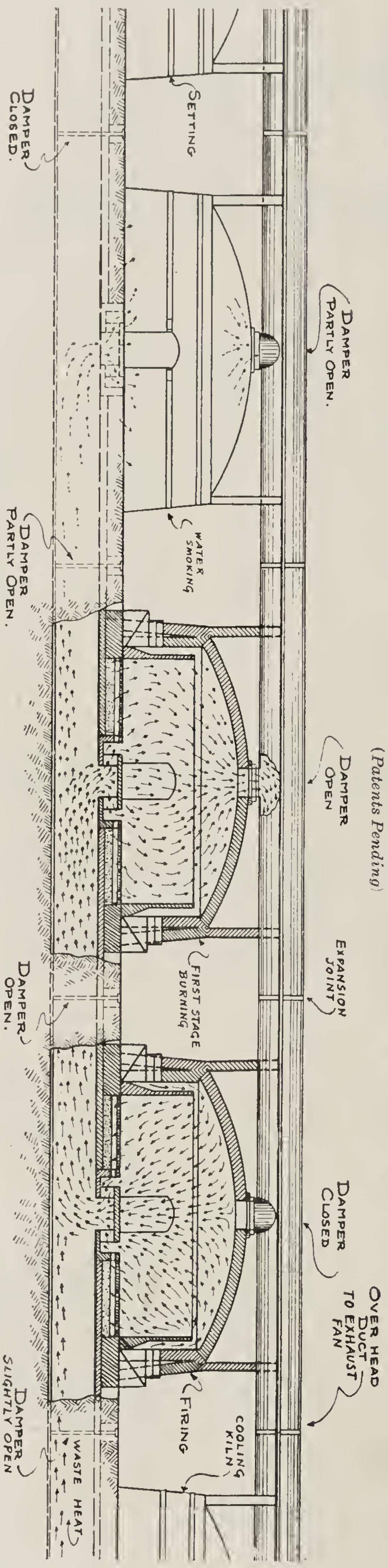

The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

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trude from time to time in the relations between the transportation industry and commerce at large.

But the machinery of redress is there. To the shipper who knows his rights, such wrongs can only be temporary and prompt action will save him from permanent financial scars.

His right to redress and relief, however, is still predicated upon that doctrine of universal application, that he must come into court with clean hands. Translated into direct terms of transportation this means that he must know the rates and pay them, whether asked to or not; that he must adopt no device, however legal its shell, that will defeat the published rate, in order that he may obtain his services at less than this rate. Thus having established his title to justice, he can stand at the bar and demand it—the law allows it and the court awards.

And justice, in business strife, is all any man can look for: the quality of mercy is not often only strained, but quite frequently strangled.

FREIGHT TARIFF CHANGES.

The following changes in freight rates as they affect clay products will be in effect at the date of this issue of "Brick & Clay Record" with the exception of two, which are marked with the effective dates.

From Eastern Points.

From Port Reading and Woodbridge, N. J., brick, common, fire, hollow, paving, or vitrified, to Blissville and Long Island City, N. Y., $1.20 per net ton.

From Southern Points.

From Brickhaven, N. C., brick, common, paving or pressed, to Lynchburg, Norfolk, South Richmond, Suffolk, Petersburg, Richmond and Roanoke, Va., 5c per cwt.

From Brictile, Broadnax and Charlie Hope, Va., common brick, to Durham, N. C., $2.10 per M. brick; to Greensboro, N. C., $2.60 per M. brick; to Henderson, N. C., $1.90 per M. brick; to Oxford, N. C., $1.75 per M. brick; to Raleigh, N. C., $2.40 per M. brick.

From Harper, Ga., common brick to Spartanburg Junc., Fair Forest, Wellford, Abbeville and Anderson, S. C., 4c per cwt. Effective March 11th.

From Middle West Points.

From Akron, East Akron and Barberton, Ohio, brick to Flint, Mich., $1.50 per net ton.

From Cincinnati, Ohio, brick, to Aurora and Elgin, Ill., $1.75 per net ton.

From Coal City, Ill., clay (fire) to Sault Ste. Marie, Mich., $2 50 per net ton.

From Marion and Muncie, Ind., brick, to Aurora and Elgin, Ill., $1.30 per net ton.

From Richmond, Ind., brick to Aurora and Elgin, Ill., $1.50 per net ton.

From Western Points.

From Chaska, Minn., brick, (except fire or enameled brick and terra cotta) to Winnipeg, Man., 17¼ per cwt.

From Denver, Colo., and Colorado common points, fire brick and fire clay, to Texico, Portales, Roswell, Artesia, Carlsbad and Red Bluff, N. Mex., 32½c per cwt.

From Denver, Colo., and Colorado common points, common and pressed brick to Texico, Portales, Roswell, Artesia, Carlsbad and Red Bluff, N. Mex., 30c per cwt.

From Gallup, N. Mex., common brick, to Prescott and Clarksdale, Ariz., 17½c per cwt.; to Humboldt, Ariz., 20c per cwt.

From Knobnoster and Waverly, Mo., brick, paving and building, including paving blocks and building blocks, to St. Louis, Mo., 7½c per cwt. Effective March 9th.

From St. Louis, Mo., East St. Louis, and Bellville, Ill., brick (except bath and enameled) to Ozark, Simpson, Grantsburg, Reevesville, Big Bay, Round Knob, Metropolis and Brockport, Ill., $1.20 per net ton.

New Book on Freight Rates.

A book that will prove of great value to those who wish a clear and straightforward exposition of freight rates in the Middle West territory has been recently issued by the LaSalle Extension University of Chicago. It is called "Freight Rates; Official Classification Territory and Eastern Canada," and is written by C. C. McCain, chairman Trunk Line Association, collaborating with W. A. Shelton, former instructor at the University. This book is published in connection with the La Salle Extension University's course in Interstate Commerce and Railway Traffic and should be in the hands of every traffic manager who ships in or to the Official Classification territory. This work, with "Freight Rates: Southern Territory" and "Freight Rates: Western Territory and Transcontinental," forthcoming publications of this series, will show the present-day tendency towards uniformity within each of the territories.

Sewer Pipe Makers File Protest.

Officers of the Blackmer & Post Sewer Pipe Company of St. Louis have appeared before the Public Service Commission at Jefferson City to protest against a railroad ruling which requires the company and others manufacturing this line of work to mark each piece of sewer pipe when shipped with the name of the consignee and its destination. The comany complains that the ruling would cost it about $6,000 a year, and is unnecessary. Railroad representatives said that each piece shipped should be addressed so that the railroad employes would not have to guess as to the number of pieces and destination of the piping. The commission has taken the complaint under advisement.

IN THIS NUMBER: NEW ORLEANS CONVENTION REPORT
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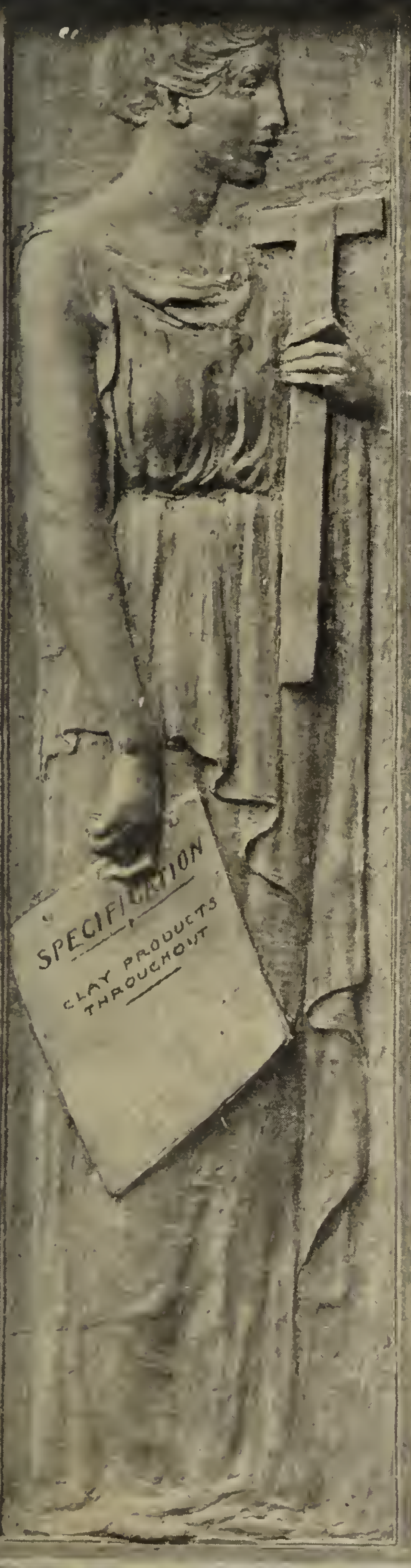
BRICK *and* CLAY·RECORD



EBEN RODGERS

PRES. NATL. BRICK MFRS. ASSOCIATION

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CHICAGO, MARCH 17, 1914

The Buyer's Directory Pages 734-738

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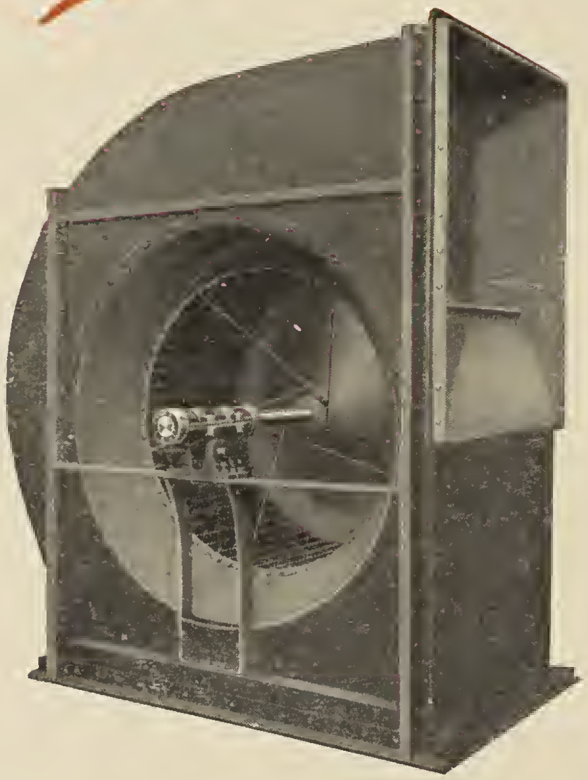

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Brick
Established 1894

Clay Record
Established 1891

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and Opinions on Some of the Graver Problems
Confronting the Clayworker and Co-Laborers

ELSEWHERE in this number of "Brick and Clay Record" there appears an announcement of invitations extended by the International Panama-Pacific Exposition at San Francisco and the Exposition of Big Ideas at New Orleans to the clayworkers of the Nation to bring burned clay products prominently before the people of the world.

Both invitations are worth SERIOUS consideration. They offer an unusually great opportunity for a Nation-wide publicity movement that will continue throughout 1914 and 1915 and WITHOUT any cost to the clayworkers.

The San Francisco invitation promises FREE freight one way on all accepted exhibits sent to the exposition—FREE space, FREE lighting, FREE janitor service, FREE police protection and an OPPORTUNITY to let the world KNOW.

The New Orleans proposition carries with it the promise that BRICK is to be USED in the construction of all the one hundred and fifty or more permanent structures and invites the brickmakers of the country to participate in one of the most widespread publicity movements ever inaugurated by an industry.

The first proposition means no expense to the clayworker other than the preparation of an exhibit.

The second proposition means no expense to the clayworker other than the contribution of the brick required to construct the buildings.

Both are worth ACCEPTING and should be SNAPPED UP by the clayworker without a single moment's hesitation.

Considerable surprise is expressed in the invitation from San Francisco that an industry that stands third among all mineral industries and FIRST among the construction materials should have so little publicity and be given so little attention by the members of that industry.

The clayworker really is on trial now.

Is he PROGRESSIVE?

Can he see an OPPORTUNITY when it is shoved under his nose?

Does he WANT to reach out and gather in the harvest that is HIS for the ASKING?

There are many possibilities in the two invitations.

At San Francisco, for instance, not only may the clayworker and the machinery manufacturer take advantage of an opportunity to make an INDIVIDUAL exhibit of his products, where MILLIONS may see them, but there is an opportunity for the industry as a whole to accomplish something that will be of lasting good and of great educational value.

Why not all the brickmakers form a pool and contribute the necessary brick to construct a moderate-price dwelling?

A structure of this nature would show the PROPER construction.

It would bring out the COMPARATIVE cost between a PROPERLY constructed burned clay house and a frame or concrete building.

The Exposition company, undoubtedly, would give free space on the grounds for such a building and welcome it.

The Exposition company also would, undoubtedly, extend the free-one-way freight offer on the material.

Why not all the hollow tile manufacturers get together and build a model fire-proof structure to show the PROPER methods to employ in this work and to show the COMPARATIVE costs with other competing materials?

Undoubtedly the Exposition company would welcome this display and make the same generous offer as to freight.

If one thousand clayworkers—or five hundred, or even a smaller number, would contribute the necessary material the pro-rated expense would be insignificant.

It is possible, also, that the International Bricklayers' Union, desiring to promote brick-

The Editor's Corner

work, would agree to do the construction work free.

For instance, at New Orleans, suppose every one of the one hundred and fifty or more buildings that will be constructed there some time this Fall, were of brick, as we are informed they WILL be, and suppose that the brickmakers followed the suggestion and contributed the brick, what would be the gain to the brickmaker?

Here is what would happen:

The New Orleans exposition is called "The Exposition of BIG Ideas." Efficiency is the slogan. The management expects to do everything connected with the construction of the exposition in record time.

It has an efficient press bureau and it has an access to every newspaper in the country.

Upon the decision of the brickmaker to contribute the brick for the Exposition buildings, the newspapers of the country immediately would be flooded with the statement that brickmakers all over the Nation were sending 10,000,000 brick to New Orleans to erect the first fireproof-permanent series of exposition buildings erected in the history of the world.

The publicity given the movement of the brickmakers sending a brick house to the Chicago clay show last year by parcel post gives an idea of the publicity that is possible from such a movement.

Next, the Exposition company, with "Efficiency" as its slogan, proposes to erect these one hundred and fifty buildings in quicker time than any previous exposition ever has builded its structures.

Every known efficient method employed in building construction would be used and the papers would be filled with the stories of the achievement for many months.

These are only a few of the possibilities in the proposition.

At the recent N. B. M. A. convention the New Orleans suggestion was presented to the brickmakers. It secured a careful consideration. In fact, the proposition was submitted to the executive committee with the instruction to ascertain whether the Exposition company was in a position to carry out its promises.

This committee will make an investigation and it is probable that this will prove the idea is worth accepting and that the N. B. M. A. will ask the brickmakers to accept it.

The San Francisco proposition, however, had not been made at that time, and, therefore, could not be considered by the convention at New Orleans.

It is, for this reason, up to the brickmakers themselves to take hold of the matter and get busy.

"Brick and Clay Record" invites a discussion among clayworkers. Let those who are interested in seeing clay products get a good boost, write this magazine and go on record as to what they believe should be done.

In the meantime the national organizations have been appealed to and one or more of these may be interested.

What are YOU going to do?

Running Expenses—
How to Charge Them

In the April 14 number of "Brick and Clay Record" there will appear a valuable article on this important factor in the successful conduct of a modern clayworking plant with some practical suggestions. You should read it.

The Editor's Corner

CONVENTION WEEK is over. The Twenty-eighth annual meeting of the National Brick Manufacturers' Association is a matter of history and the record has been written. New Orleans, with its hundreds of years of tradition, its quaint buildings, its narrow streets, its likeable people, and its many points of interest is but a memory to those clayworkers that basked in the warm sunshine of the Crescent City and tickled their palates with the savory dishes which have made the city famous.

And who among us can say it was not a profitable week?

If you went there solely for PLEASURE and for RECREATION, you got it, or you failed to seize your OPPORTUNITIES.

If you went there to IMPROVE yourself as a clayworker you succeeded or you neglected to grasp the chance that was OFFERED you.

If you went there for both pleasure and profit, you have no one to blame but yourself if you did not accomplish your purpose.

No matter what the intent of the visitor he is AHEAD.

It is the stay-at-home-fellow that LOSES.

It is the clayworker who figured that the distance was too far and the expense too great and who expects to get his bill of fare second-handed that has missed something.

Just as well try to say that someone can tell the stay-at-home fellow what a fine dinner Galatoire serves or what an appetizing drink Ramos makes and thus convey to him the delectable flavor of the menu or the soothing effect of the beverage, as say he may likewise give him the cream of the week's convention offering.

It is the clayworker who was ON THE GROUND that is to benefit—not the fellow that stayed away.

It was a week of goodfellowship.

Probably never before in the history of the N. B. M. A. did a body of delegates get so well acquainted.

It was a meeting of the utmost democracy. It was a week where all formality was discarded—where the stiffness of reserve melted away in the delightful atmosphere of hospitality that seems to be so characteristic of the Convention city.

Much was there to be gained in the excellent program arranged for the convention. The addresses and the technical papers were highly instructive and profitable. The discussions were many and led into fields that were quite often unexplored.

But greater profit came from the interchange of ideas, not only on the convention floor but in the hotel lobbies and wherever clayworkers gathered.

The man with the memorandum book and pencil was in evidence. And he used it frequently and to a purpose.

The man with a problem to be solved had little trouble in finding someone who had traveled ahead of him and had worked out the same.

The man who had labored in a rut for all these years discovered that his neighbor was taking a shorter cut and proving to the world that clayworking is a PROFITABLE business instead of an EXPENSIVE pastime.

To those that were in New Orleans these things came. The trip was worth while alone for what was received in thiswise.

But, there was a greater profit. There was something still more valuable in the assets of the Convention.

It was this:

GOODFELLOWSHIP.

It is probable, for this reason, if for none other, that the New Orleans convention will go down in history as one of the best and the most profitable ever held by the clayworkers.

Let us now turn our faces FORWARD.

Nineteen hundred and fifteen is AHEAD.

Whether the next convention is to be in San Francisco, or Indianapolis or elsewhere, let us pull TOGETHER and make it a record breaker.

This Entire Number

is devoted to convention news, and necessarily the usual departments and special features are crowded out.

Eben Rodgers*—Class of '14

We want those things that are hard to get, so it is said. Probably that is why the Presidency of the N. B. M. A. is considered such an honor.

Ambitious clayworkers find it a long hill—this goal of theirs, for it takes years to reach it, even after one has been considered likely material, and then he may fail.

Eben Rodgers is a young man who did not fail, therefore he has reached the goal.

IN most organizations or forms of governments the position of vice-president is an empty honor. Usually it is a place given the most troublesome member, as it acts as a silencer and assures the majority that so long as the meaningless position is filled by him that he will cease to be a thorn in the side.

Not so with the National Brick Manufacturers' Association. The honor means something. The clayworker who is chosen to fill the position is selected because he is believed to be worthy of the highest honor in the gift of the members—that of chief executive, and, in the line of the usual succession, and provided Providence does not interfere with the plans, he eventually comes into his own.

A vice-presidency in the N. B. M. A., therefore, is a sort of training school for the presidency. With wisdom born of long experience and guarding carefully the welfare of the parent organization, the writers of the law said there should be three vice-presidents and that each should serve three years that he might have time to gather wisdom and be the better equipped for the responsibility of his position.

None but level-headed men shall guide the destinies of the N. B. M. A., say the members so when a third vice-president —the Freshman of the class, is selected the utmost care is exercised.

When the N. B. M. A. in Nineteen Hundred and Eleven looked about for a third vice-president to succeed W. H. H. Rogers, who has just retired from the chief executive position, having, through succession, reached that point in the meantime, it deliberated well.

The name of a youthful member was presented—probably the most youthful that ever before had been considered. This young man was Eben Rodgers, the guiding spirit in the Alton Paving Brick Company of Alton, Ill.

While young in years he was old in experience and in wisdom and long had been identified with all that meant progress in his industry.

It was a happy choice and a well-merited one, for Eben Rodgers is well-beloved by all and no better presidential timber could have been selected.

Through the process of succession Mr. Rodgers has moved up each year from the Freshman and Sophomore classes until he reached the graduating period at New Orleans and was given his diploma.

Today he is president of the N. B. M. A., and he starts out with a record of many achievements.

He is a young man that does things. He talks little. He thinks fast. He acts decisively.

And he is just such a man that will rule impartially, intelligently and who will be a credit to the Association that honored him with the highest gift it had to offer him. May his reign be a record-breaker in every way.

**Portrait on Front Cover*

N. B. M. A. CONSIDERS $100,000

Many Valuable Contributions Are Made to Technology by Experts—Delegates Solve Perplexing Problems in Interesting Discussions

The papers read at the Twenty-Eighth Annual Convention of the National Brick Manufacturers' Association at New Orleans, March 2-7, and which are printed in the following account of the meeting, are used by permission from the copyrighted proceedings.

A ONE HUNDRED THOUSAND DOLLAR publicity campaign may develop from the Twenty-eighth Annual Convention, at New Orleans, of the National Brick Manufacturers' Association. The plan, if it goes through, will mean the contribution of 10,000,000 building brick for the construction of the one hundred and fifty or more buildings in the Exposition of Big Ideas to be held in New Orleans in 1915.

This enormous contribution of brick will be as a donation, according to the scheme, from the brickmakers of the country to prove that the only fireproof material is burned clay and that the only building material that will make it possible to construct an exposition of such magnitude in such short order is this same burned clay.

It was proposed that every brick manufacturer in the country will take a part in the contribution. If the suggestion is acted upon generally each individual contribution will fall lightly on the donators.

The idea comes from a statement made by Herbert Kauffman, the journalist, who is the directing genius of the Exposition, and who, as representative of the Exposition Company, addressed the Convention and declared that inasmuch as the Board of Directors had determined to construct the buildings of permanent material, they were inclined to select brick.

Mr. Kauffman appeared before the Convention Friday evening upon invitation at an adjourned business session and outlined the purposes of the Exposition. His magnetic personality held his audience interested for several hours as he pictured the wonderful work New Orleans was seeking to accomplish in the effort to properly bring before the world the advantages of the South.

The suggestion that came from Mr. Kauffman's statement was discussed until nearly midnight and resulted, finally, in referring the matter to the Executive Committee of the N. B. M. A. for investigation and for a conference with Fritz Salmen, who is not only a brickmaker in the New Orleans market, but who, also, has an interest in the development of the city. This committee will make a report and the N. B. M. A. will either give the publicity feature an unqualified indorsement or turn it down entirely.

The above picture was taken by a staff-photographer of the delegates posed at the Salmen Brick Plant for a group and shows the official photographer in the act of making the picture which is reproduced in the narrow strip at the top of this and the next page.

FACTS ABOUT THE BIG WEEK

OCCASION—Twenty-Eighth Convention N. B. M. A.

PLACE—Grunewald Hotel, New Orleans, La.

TIME—March 2 to 7 inclusive.

ATTENDANCE—Registered members, 311.

OTHER MEETINGS—National Paving Brick Manufacturers' Association; National Clay Machinery Association; Ancient Order of Chaldeans.

The proposition is a stupendous one and, as it is considered at first glance, seems almost impossible of achievement, especially in the time required. However, a careful analysis of the scheme makes it seem easier and it is possible that some sort of plan may be worked out that will give the brickmakers the chance to take advantage of the opportunity to participate in a very general publicity scheme covering the entire Nation for a year or more at least.

For this reason, alone, the week of the Convention may be declared to have been a most profitable one. However, there were a number of interesting papers read—many of which were of exceptional value as contributions to the technology of the Association, and a number of important discussions took place.

These papers, or, at least, a portion of them, are printed in full in this number of the magazine. The others will follow in subsequent issues at intervals.

No action was taken on several questions that were ex-

CAMPAIGN FOR PUBLICITY

Week's Session Is Marked by Many Evidences of Good Fellowship and Delegates Go Home Better Prepared to Combat Common Foes

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Upon the arrival of the special train bearing the delegates at the Salmen Brick Plant at Slidell, La., the amateur photographers got busy and began to take pictures of the crowd. The above picture shows the train and delegates disembarking, with ex-President Gregory in the foreground taking a snap shot.

WHAT WAS DONE

GOVERNMENT—Eben Rodgers elected as president to succeed W. H. H. Rogers. C. P. Mayer elected first vice-president; Charles J. Deckman, second vice-president; Fritz Salmen, third vice-president; T. A. Randall, secretary; John Sibley, treasurer.

PUBLICITY—Convention considers big publicity campaign in connection with New Orleans Exposition.

TECHNOLOGY—Contributions of valuable papers on various subjects are made by noted ceramic experts.

pected to be discussed, one of these being the proposed clay show to be held at the San Francisco Exposition in 1915. The general opinion appeared to be that it was ill-advised to attempt any sort of concerted effort, as an Association.

The fact that the Clay Show would mean, also the holding of the 1915 Convention in San Francisco, probably had a lot to do with the failure to take up the matter. The Convention this year having been held at New Orleans, a city somewhat removed from the center of the clay field, had a tendency to discourage any suggestion that the 1915 meeting be held so far away as San Francisco.

At several points in the various discussions that came up the question of the bricklayer was introduced, but no definite action was taken that would bring the two branches of the industry into a closer relation. The delegates seem to think that the bricklayer was the greater offender and whatever advances that might be made should come first of all from him.

The Convention opened Wednesday morning, Retiring President W. H. H. Rogers taking the gavel and calling the delegates to order at 10 o'clock. With the exception of C. P. Mayer, the second vice-president, all the officials were in their seats, Mr. Mayer coming in later.

Rev. McF. Alexander, of New Orleans, made the invocation, his prayer being one of the most eloquent and fervent ever heard by the Association as a body.

Martin Behrman, mayor of New Orleans, was introduced and delivered the official address of welcome. Mr. Behrman, besides being somewhat of an orator, is very much a booster for New Orleans and after convincing the delegates that New Orleans offered many opportunities for investment, especially in view of the fact that the opening of the Panama Canal would make the city the Garden Gate City, invited all the brickmakers present to come and make their homes with him and his people.

There was no doubt about the hospitality of his address of wecome, but when William D. Gates, the humorist of the N. B. M. A., arose to make the response, on behalf of the Convention, he questioned somewhat the wisdom of the invitation.

"If all these brickmakers accepted your kind invitation, Mr. Mayor," he said, "I am afraid that our friend Fritz Salmen will enter a serious objection. He might welcome a little competition, as most of us do, but to bring in several hundred brickmakers upon him probably would be rather severe treatment."

Mr. Gates made one of his characteristic addresses and caused considerable merriment. He has lost none of his good humor and is ever ready with repartee. In concluding his address he said that "Unlike that famous picture, 'September Morn,' he was approaching his 'close.'"

Retiring President Rogers then read his annual address. It follows:

> In calling this Twenty-eighth Annual Convention of the National Brick Manufacturers' Association together I desire first of all to express my deep appreciation of the compliment you paid me in choosing me as your presiding officer. I count it as a distinct honor to serve as the executive head of such a splendid organization. This Association has done much toward the upbuilding of our great country, and it is very gratifying to see the evidence, manifest by this Assembly, of its continued growth and influence.
>
> It is a great pleasure to look into the faces of so many of the representative manufacturers of clay products from all sections of the country. There are members here from most of the States of the Union,. and I am especially pleased to note

Scene in assembly hall of Grunewald Hotel at the annual banquet of the N. B. M. A. on the evening of Thursday, March 5. These events are looked forward to with considerable interest as the climax of all social functions of the week.

a large delegation from Canada. This is particularly pleasing inasmuch as this is the first time in the history of our Association that we have convened in annual convention so far from the geographical center of our membership. After due deliberation your Executive Committee, with whom rests the responsibility of determining time and place of meeting, deemed it advisable to invite an expression on the part of the members as to the preferred place of meeting. With great unanimity you chose New Orleans. This diversion indicates anew the national scope and character of our organization, an incident which I am sure must be very gratifying to us all.

It is exceedingly pleasant to gather here in New Orleans, for the city is conspicuous as a great metropolis and is regarded as the chief city of the South and, with the march of events now impending, its future growth and prosperity is sure and certain. We have in the past met in many of the large cities of our country, none of which to my mind possess or combine so much of the ancient and modern phases of life. While it is a great commercial center, its people are not devoted to commercialism alone, but find time for the indulgence of social pleasures, which adds much to the joy of living. Its quaint, picturesque architecture and tropical foliage appeals irresistibly to those of us from the North, and I think I am safe in predicting that it is destined to become the Mecca for American pleasure seekers. In area, New Orleans is only surpassed by three cities in the world. In sociability and good fellowship, it is surpassed by none, so I feel we may congratulate ourselves on assembling here at this time.

We meet for the purpose of spending a few days in social intercourse and in discussing affairs of common interest in which we are all deeply concerned. The growth of the technical side of our industry is due in a very large measure to the influence of this organization.

The frank discussion of the various phases of the business, both on the floor of the convention and in the friendly personal intercourse between sessions, is of immense advantage to every member. The interchange of experience in our industry is of great advantage. It enables us to profit by one another's experiences in the manipulation of clay and the handling of our products, and we can profit not a little, too, by the consideration of the commercial side of our business.

It is scarcely more than a decade since the building of improved highways was taken up in earnest by most of the States. What wonderful strides have been made and what a conspicuous part brick has taken in its solution is well known, and it is generally conceded that brick is superior to all other materials not only in the city streets, but in highway building as well.

When the project of building a steam railroad to the Pacific Ocean was broached and its possibilities discussed I heard the president of the Toledo & Wabash Railroad make the statement that the scheme was impractical, as the rails would wear out three times in the course of its construction. Those were the days of the iron age. A few years later we entered the steel age, and that material became a potent factor, making possible the carrying to fruition this stupendous undertaking. It was not an idle dream of Dr. Hartwell Carver, its original projector, who died April 16th, 1875, in his eighty-sixth year. His remains were interred in Mt. Hope Cemetery, Rochester, N. Y. Upon the shaft of his monument we find this inscription:

"Was the father of the Pacific Railroad. With him originated the thought of connecting the Atlantic and Pacific Ocean by railroad.

"Many years of his life were devoted to arousing the public mind to this great enterprise and demonstrating its practicability.

"He lived to see as an achieved fact what for years before was to him a vision of the future."

There is now projected the building of an improved highway connecting the Atlantic and Pacific oceans. Its projectors are not confronted with the embarrassing conditions as were the original builders of steam railroads. They have in paving brick a material easily obtained, reasonable in price, sanitary and lasting. When the building of this contemplated highway becomes an established fact manufacturers of paving brick are admonished to see that their products are a conspicuous part of its construction, and to see that an unscrupulous builder is not turned loose upon the job with his contract and a bundle of specifications and trust to an overruling and beneficent Providence for the outcome.

What is true of brick as a paving material for streets and highways is true of brick for structural work: the initial cost being but slightly in excess of wood, admit of their use in the construction of the humble home. On the other hand, if desired, buildings can be embellished by artistic terra cotta and tile no matter how lavish the design or how extravagant the idea of the architect or owner. Brick and terra cotta meet every requirement of the builder whether for a modest home or a richly decorated edifice.

Agricultural experimental stations and colleges are to the farmer what technical and trade schools are to the manufacturer. These advantages better fit them for industrial and commercial efficiency, better fitted to solve the complex questions that are sure to arise in their future career. In many of our largest and most up-to-date manufacturing plants you will find young men, the heads of departments, displaying conspicuous ability. These advantages afford them a broader conception of affairs: business cares become more strenuous as we advance in years. Educate your young men along practical lines to relieve you of some of the cares and responsibilities. Manufacturers of today are not reaping the profits from their activities they should. Prices for their manufactured product have not increased in proportion to the cost of production; on the other hand there never has been a time when the masses lived so well and gave so little in return.

The general public welcomes conservation of our resources by National and State authorities. The time is not remote when all will realize how important a question it is, though little attention has been given it. The preservation of the forests is important: it conserves the water power that thirty years ago could only be used at the banks of the streams, since then the development of means for generating electricity, for transmitting it long distances and transforming it into light, heat and power at a low cost. Our country is comparatively new and so rich in resources that we are apt to forget they can be exhausted and will be if care is not taken to protect them from waste and exploitation. The policy of conservation is one of the most important of our day and one in which we should all take an interest in seeing economically developed.

A word regarding a member of this Association whose friends

These pictures were taken by a staff photographer at Slidell, La., upon the visit of the delegates to the Salmen Brick Co.'s plant. Fritz Salmen is shown on the left. In the center is Henry Kleymeyer, of Henderson, Ky., and William D. Gates, of Chicago, is shown at the right.

are legion and whose deeds are written upon every page of its history. Few men could have accomplished as much; no one could have accomplished more, never tiring in his efforts for the Association, he has so loyally supported. Were it not for his untiring devotion this Association would have long since been numbered with the past instead of having a bright and promising future, typifying twenty-eight years of valiant service rendered this Association by our secretary, Mr. T. A. Randall.

Not a few of our members will have traveled thousands of miles to attend this convention. As we pass through the country on our journey we are reminded of its vastness, of its productiveness, of its mineral resources, of its wealth of manufactured products, of its many thriving villages, of its magnificent cities and its untold mineral wealth yet undeveloped. A great statesman in referring to this country once said:

"This lovely land, this glorious liberty the dear purchase of our fathers, are ours, ours to enjoy, ours to preserve, ours to transmit. Generations past and generations to come hold us responsible for this sacred trust. Our fathers from behind admonish us with their anxious paternal voice; posterity calls out to us from the bosom of the future. The world turns hither its solicitous eye—all, all conjure us to act wisely and faithfully in the relation which we sustain."

To this fine sentiment we brick manufacturers may say "Amen" most heartily, for we have not only shared in the natural wealth of our country, but we have added to it many, many millions by turning crude, raw material, Mother Earth, of little value in its original state, into indestructible structural materials. This I consider true conservation of the highest order. Surely, it justifies the claim that when our labors are done we leave behind us to benefit future generations permanent homes, beautiful edifices, which will stand as monuments to our skill and industry long years after we ourselves have turned to clay.

Fellow-members of the N. B. M. A., I am proud to be a brick manufacturer. We are engaged in no mean business. I am proud to have served as president of this great Association, and again I thank you sincerely for the honor and kindly consideration shown me. (Loud applause.)

The annual report of Treasurer Sibley was read. Ninety-two new members had been taken in during the year and there was a balance of $456.93 in the treasury, according to the items he read.

This brought the election of officers in order and Retiring President Rogers declared that nominations were acceptable. Lemon Parker, of St. Louis, arose and placed the name of Eben Rodgers before the Convention. Charles A. Bloomfield gave the first second to the nomination and, as there were no other candidates, a motion was made to declare the nominations closed and Secretary Randall was ordered to cast one ballot for Mr. Rodgers as the unanimous choice.

Prof. A. V. Bleininger nominated Charles P. Mayer, of Bridgville, Pa., for first vice-president, Mr. Mayer having held the postion of second vice-president during the past year. William Conway nominated Charles Deckman for second vice-president and Charles A. Bloomfield nominated Fritz Salmen to succeed Mr. Deckman as third vice-president.

Each of these nominations were made without opposition and the election of the three vice-presidents was declared unanimous, a rising vote being taken on Mr. Salmen's choice because of his active interest in making the convention a successful one.

When the nominations for secretary were declared in order William D. Gates arose and placed the name of Theodore Randall on the roll. His address of nomination was brief and Mr. Randall was re-elected to succeed himself for the twenty-eighth time.

The name of John Sibley, to succeed himself as treasurer, also was placed in nomination in the same manner and he was declared the choice once more of the Association.

Charles Clippert and Lemon Parker were appointed to escort the newly elected officers to their posts. President Rodgers was led to the chair first and Retiring President Rogers gave him the gavel with a few words of well-wishes.

President Rogers made only a brief address, acknowledging his appreciation of the honor conferred upon him and promising to exert his best efforts in making his reign one of material benefit to the Association.

The other officers were escorted to their positions and each made a brief address to the Convention.

Secretary Randall announced that the term of one of the members of the Committee on Technical Investigation—D. V. Purington, expired and that his successor would have to be elected.

"While Mr. Purington is not actively engaged in the business just now, I doubt if we could find a more capable man to succeed him and I believe it wisdom that he be re-elected," suggested the Secretary.

The Convention followed this suggestion and Mr. Purington was selected to continue on this body. The committee is composed of Prof. Edward Orton, Jr., W. D. Richardson, Prof. A. V. Bleininger, Prof. Ross C. Purdy and D. V. Purington.

There was only one paper on the program for the day—

On the left is Charles P. Mayer, first vice-president of the N. B. M. A. In the center is Charles J. Deckman, the second vice-president, and on the right, Fritz Salmen, the third vice-president.

that of L. E. Wolfe who talked on the "Need of Greater Thrift Among the Rising Generation in America."

"The reason that crime, divorce and suicide are on the increase in the United States and that the rising generation is extravagant in the expenditure of money and destruction of property is due," declares Mr. Wolfe "to the present failure to drive home habits of thrift and industry." Mr. Wolfe, as the representative of the American Society for Thrift, urged the return to ways of thrift and adoption of gardening as part of public school instruction as a most important step in correcting the prodigal ways, in bringing pupils in school into contact with men as well as women, and in ending the fetich of book learning that crowds thrift into the background."

The speaker, formerly superintendent of schools in Memphis, Tenn., when 2,000 boys were set to school gardening, brought his own successful experience to back up his statements. It was largely due to the Memphis experience that President Simon W. Straus, of the American Society for Thrift, became interested sufficiently to urge school gardening upon United States Commissioner of Education Claxton recently.

Professor Orton, who was on the program to deliver an illustrated lecture that evening, was given a place on the program of the first session, because of some confusion in getting a suitable lecture room at night. "The March of Progress in the Clay World," was the title of his subject and the speaker, one of the best on matters ceramic, covered the field in a most interesting and exhaustive manner. It is to be regretted that many of the slides used do not lend themselves to illustration and, without these, which formed an essential feature of the address, the lecture would prove of little practical value.

Many of the stereopticon slides used were supplied by

On the left is Edward Rodgers, of the Alton (Ill.) Brick Co., and father of Eben, the newly elected president of the N. B. M. A. In the center is Prof Edward Orton, Jr., secretary of the American Ceramic Society and dean of the Ceramic Department, University of Ohio. On the right is H. H. Fate, president of the J. D. Fate Co., Plymouth, Ohio.

The two pictures shown at the top of the page are of Secretary Randall and party en route to New Orleans, the photographer taking a snap shot. Mr. Randall and his granddaughter, Baby Gould, is on the left. In the group are: First row, beginning at the left—James E. Randall, Miss A. M. Wallace, Baby Gould, Mrs. Geo. Potts. Standing, reading from the left are—Mrs. T. A. Randall, Mrs. J. E. Randall, Mrs. Gould, Robert Elliott, Jr., Mrs. Robert Elliott, Jr., Mrs. Robert Elliott, Sr., Robert Elliott, Sr., Harry Wirsching and A. W. Hewitt. Secretary Randall is seen peeping over the head of Mrs. J. E. Randall.

Prof. Cronquist, of Sweden, who was an attendant at and a participant in the Convention at Chicago last year. Others were from photographs taken by Professor Orton and others in this country, and all tended to illustrate the latest devices used in clayworking.

Professor Orton's lecture closed the first session.

The afternoon was used by the delegates in "seeing the sights."

In the evening there was no scheduled feature on the N. B. M. A. program for the entertainment of the delegates, other than the lecture by Professor Orton, and which, as has been explained, had been advanced to a day session. The Ancient Order of Chaldeans, however, gave a cabaret and smoker at the Cosmopiltan Hotel, and, as all its members are also members of the N. B. M. A. a number of the delegates found a profitable evening with this newly formed lodge of clayworkers.

Thursday morning, the second session was called to order by the newly elected president, Eben Rodgers. The day's program included a number of papers and because of the length of some of these there was a slight change in the order previously published. These papers, as well as those that were to be read Friday, are here given:

The paper by J. C. Schaffer on "The Cause of Keen Competition in Building Material, or What Hurts the Clay Workers," was an unusually valuable one. It will appear in a subsequent number.

Paul Beer had as his subject "Smokeless Combustion As Applied to the Burning of Clay Products in Periodic Kilns," and brought out considerable discussion. It follows:

What is to follow should not be construed either as a defense of the periodic kiln in comparison with the continuous kiln, nor as an admission that the continuous kiln is superior to the periodic for the achievement of certain results. Both types of kilns are in common use and it is doubtful if anyone would be so bold as to make the specific statement that, under any and all conditions, but one of the two types of kilns should be commonly used.

Whatever argument may be advanced as to the utility of the periodic kiln in the burning of clay products, it must be admitted that its present average efficiency should and can be materially increased. This paper will not attempt to discuss improper kiln design, by reason of which under fuel combustion heat losses result through excess radiation, infiltration, non-uniform heat distribution, etc. These specific diseases have been admirably treated by Professors Orton and Bleininger. Let us, therefore, consider, with as few technical terms as possible, the subject of proper furnace design for fuel economy.

You may or may not know that until quite recently nearly all

Three interesting groups of N. B. M. A. delegates. In the one on the left is W. B. Kincaid, of the Kincaid Brick Co., Boonespath, Va. In this same group, and on the right, is J. P. Williams, of St. Louis. In the second group, Edward K. Cormack, of Chicago, and Paul F. Jahncke, of New Orleans. In the right hand group are: Lawrence B. Koblitz, American Building Brick Co., Cleveland; F. L. Brown, Fair Hope, Ala.; Roy Bennett, Wellington Machine Co., Wellington, Ohio, and Thomas M. Harwood, Sunset Brick Co., Gonzales, Texas.

On the left is Hubert Somers, of Atlantic City, N. J. Charles A. Bloomfield, of Metuchen, N. J., is in the center.

JEFFERSON MIDDLETON,
Of U. S. Geological Survey.

Lincoln S. Morrison, southern representative Chamber Bros. Co., is on the left; E. G. Beichler, western representative of same concern is in the center, and E. T. Ashbury, of the Hall Brick Co., Milledgeville, Ga., is on the right. right.

scientific effort in power plant operation was directed toward improvement of engine efficiency and steam economies rather than toward effecting economies at the source of power itself. We have wonderful engines. Many steam economies have been effected by the introduction of condensers, proper valve adjustments, pipe and boiler insulation, tight settings, etc. And yet, if one can produce from three pounds of coal the same results that formerly required five pounds, the economies which may now be accomplished by means of valve adjustments, etc., pale into insignificance by comparison. Is it not, therefore, strange that some attention has not been given to the establishment of proper and continuous firing condition?

The efficiency of any fuel burning device, to whatever service it may be applied, is measured by its capacity to effect perfect combustion without undue excess of air, and deliver the product of this combustion to the object to be heated, with minimum loss. Herein we will consider only bituminous coal as a fuel, and this is, above all others, the smoky fuel. In order to accomplish complete combustion and thereby develop a maximum of heat units from a given coal, several conditions must obtain.

First. The air supply must be ample and under perfect control.

Second. The intermingling of fuel and air must be so complete that every minute particle of the one comes in direct contact with some particle of oxygen from the air supply.

Third. The temperature at which ignition of all the component parts of the component parts of the fuel takes place must be maintained until combustion is complete.

The absence of any of these conditions results in imperfect combustion and consequent reduction of developed heat units—and thereby a waste of fuel. It will be found that those devices and methods which fail in developing the full heat value of the fuel, do not permit:

First: The constant maintenance of a temperature sufficiently high to insure the complete ignition of the combustible gases.

Second: Control of the air supply, with the result that either a large excess of air may be admitted to the furnace and a large portion of the heat thereby utilized in heating the air, with a consequent reduction in temperature; or the air supply may be below the amount required to support complete combustion, thus permitting the escape of unburned combustible gases.

It does not necessarily follow that, because combustion is complete, it at all times represents the best possible condition of economy or efficiency. Combustion may be complete still quantity of air in excess of that required for complete combustion in practice may be admitted to the furnace, with a resultant reduction in temperature.

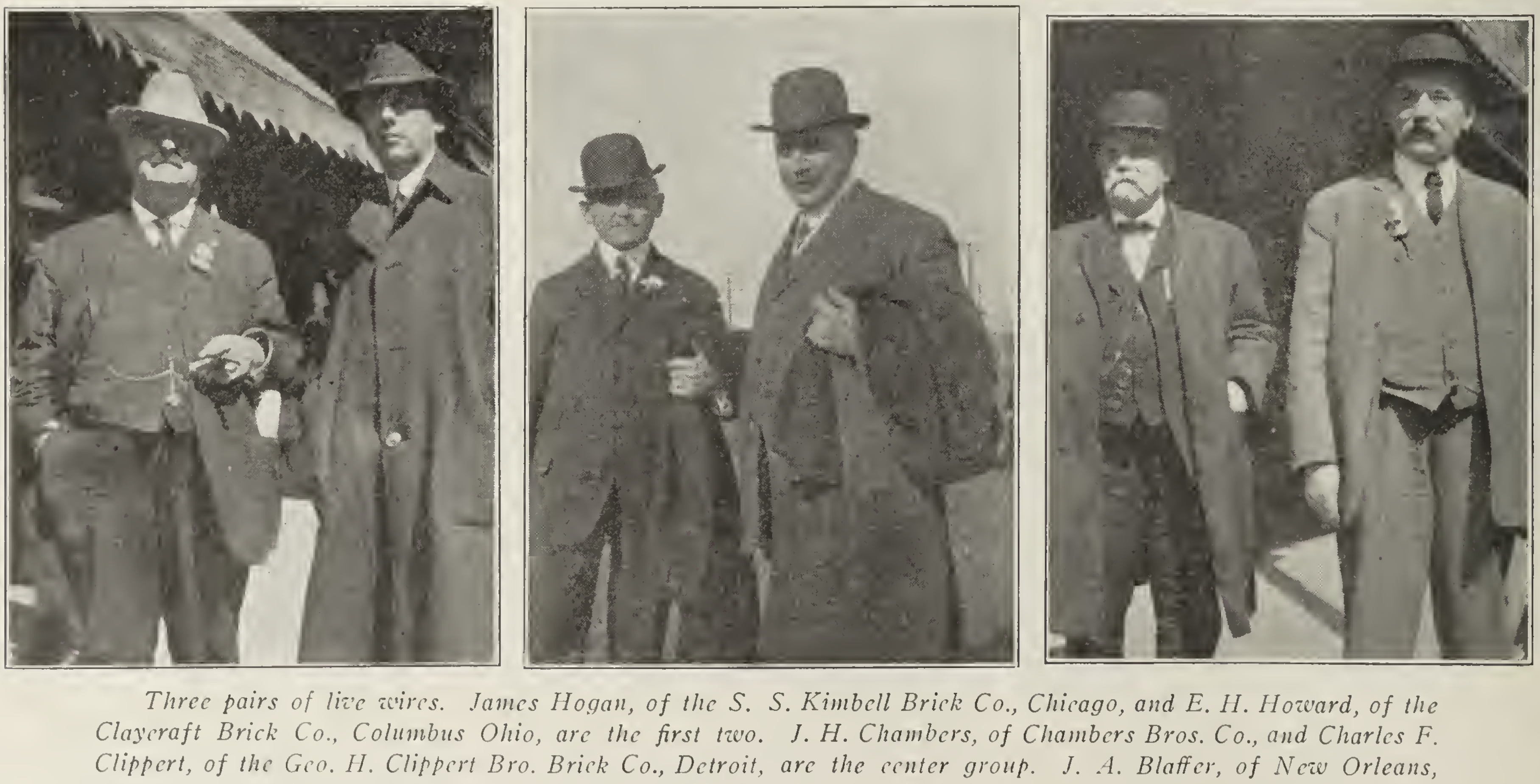
Let us assume, by way of example, that we are using a bituminous coal which shows by analysis a thermal value of 13,000 b.t.u. Theoretically, it would require approximately twelve pounds of air to completely ignite one pound of this coal. Let us therefore assume that complete combustion is obtained under three different conditions:

First: By use of the theoretical quantity of air required for complete combustion.

Second: Using one and one-half times the theoretical quantity of air.

Third: Using twice the theoretical quantity of air.

By weight, a unit volume of air contains approximately 23.7% oxygen and 76.3% nitrogen. If, as above stated, it requires twelve pounds of air to completely ignite one pound of coal gases, the total weight of the two substances required for combustion would be 12+1=13 pounds. Let Tf represent the temperature of the products of combustion, and let U equal the.



Three pairs of live wires. James Hogan, of the S. S. Kimbell Brick Co., Chicago, and E. H. Howard, of the Claycraft Brick Co., Columbus Ohio, are the first two. J. H. Chambers, of Chambers Bros. Co., and Charles F. Clippert, of the Geo. H. Clippert Bro. Brick Co., Detroit, are the center group. J. A. Blaffer, of New Orleans, and Oliver Baird, of Parkhill, Ont., are the right-hand two.

These are all machinery men. George Potts, of C. & A. Potts & Co., and L. E. Rogers, of the L. E. Rogers Engineering Co., are in the first picture in the order named. J. W. Lazear, western representative of the Brown Instrument Co., is in the center. He made himself famous as a tango expert during the week. D. D. Deeds, of the Thew Automatic Shovel Co., and R. L. Dennison, of the C. W. Raymond Co., are shown in the picture at the extreme right.

thermal value of the coal, which equals, in this case, 13,000 b.t.u. Therefore,

1. $Tf=\frac{13{,}000}{(12+1)0.237}=4219° \text{ F.}$

2. $Tf=\frac{13{,}000}{(18+1)0.237}=2886° \text{ F.}$

3. $Tf=\frac{13{,}000}{(24+1)0.237}=2194° \text{ F.}$

By admitting twice the theoretical quantity of air for complete combustion, as compared with one and one-half times the theoretical quantity, there results, as above demonstrated, a reduction in temperature of 692°.

The argument may be advanced that even though the temperature is decreased, a greater volume of gas is admitted to the object to be heated, and it will consequently absorb more heat. This, however, is not true. It is fair to assume, neglecting heat losses, that the heat utilized in heating the ware is represented by the difference in temperature as between the furnace gases and the chimney flue gases.

Let Tf=temperature of furnace gases at zero atmospheric temperature.

Let Tc=temperature of flue gases.

Let Ta=temperature of atmospheric air.

Let TF=actual temperature of the products of combustion, =(Tf+Ta).

Let Hu represent the heat utilized. This, reduced to a percentage basis=$\frac{Hu}{100}$

Then, $Hu=100\frac{TF-Tc}{TF-Ta}$

Assume that Tc=600° F. and Ta=60° F.

Then, TF=4219°+60°=4279° F.

Therefore, for theoretical quantity of air.

1. $Hu=100\frac{4279-600}{4279-60}=87.1\%.$

Using one and one-half times the theoretical quantity of air.

2. TF=2886°+60°=2946° F.

Therefore, $Hu=100\frac{2946-600}{2946-60}=81.2\%.$

Using twice the theoretical quantity of air,

3. TF=2194°+60°=2254° F.

Therefore, $Hu=100\frac{2254-600}{2254-60}=75.3\%.$

From the above it is seen that there is a loss in possible heat utilization of approximately 76% as between the use of one and one-half times the theoretical quantity of air for complete combustion, and twice the theoretical quantity of air for complete combustion. The actual fuel loss resulting from the use of excess air is considerably more than this, as excess air requires a swifter gas motion and a consequent higher flue gas temperature. The additional loss can be quite readily determined by flue gas temperature readings under both conditions. From the demonstrations above given, it will be noted that

The heat utilized increases as the temperature of the air increases;

The heat utilized increases as the temperature of the chimney gases decreases;

The heat utilized decreases with the quantity of air admitted for complete combustion.

Let us now go back to the prime requisites for complete combustion—a proper amount and uniform distribution of air at a temperature sufficiently high to insure the complete ignition of the volatile gases. It naturally follows, in view of the foregoing, that a furnace so designed and constructed that it will supply more nearly the theoretical quantity of air, uniformly distributed, at the highest possible temperature, will be found to be the most efficient furnace and the most economical fuel user.

To meet these essential requirements, much study in furnace design has been devoted by combustion engineers. In boiler practice we have many efficient mechanical devices such as the chain grate, automatic inclined grate devices, underfeed stokers, etc. In all these devices the principle of continuous firing is involved. In kiln practice, therefore, that furnace which meets the requirements above named for complete combustion and which further will insure a continuous progressive fire and a fairly constant temperature curve rather than an intermittent fire and a variable temperature curve, is the device which will be found most economic in its application to periodic kilns. In addition to the provision for progressive firing, this furnace should have a proper design of combustion chamber for a retardation of the gases in order to promote a thorough mixing, and a proper form of ignition arch in order to utilize reflected heat in the process of combustion. Its operation should be attended with as nearly as possible continuous draft readings, flue gas analyses, and pyrometer readings, in order to insure the highest possible state of efficiency.

During the process of combustion a large quantity of gases escapes from the chimney. If combustion is complete these gases may be classified in two groups, as follows:

First: Products of complete combustion.

Second: Unused air.

These gases give no visual indication of their presence at the chimney top, yet they are the proper products of complete combustion. If combustion is incomplete, the chimney gases are divisible into three groups:

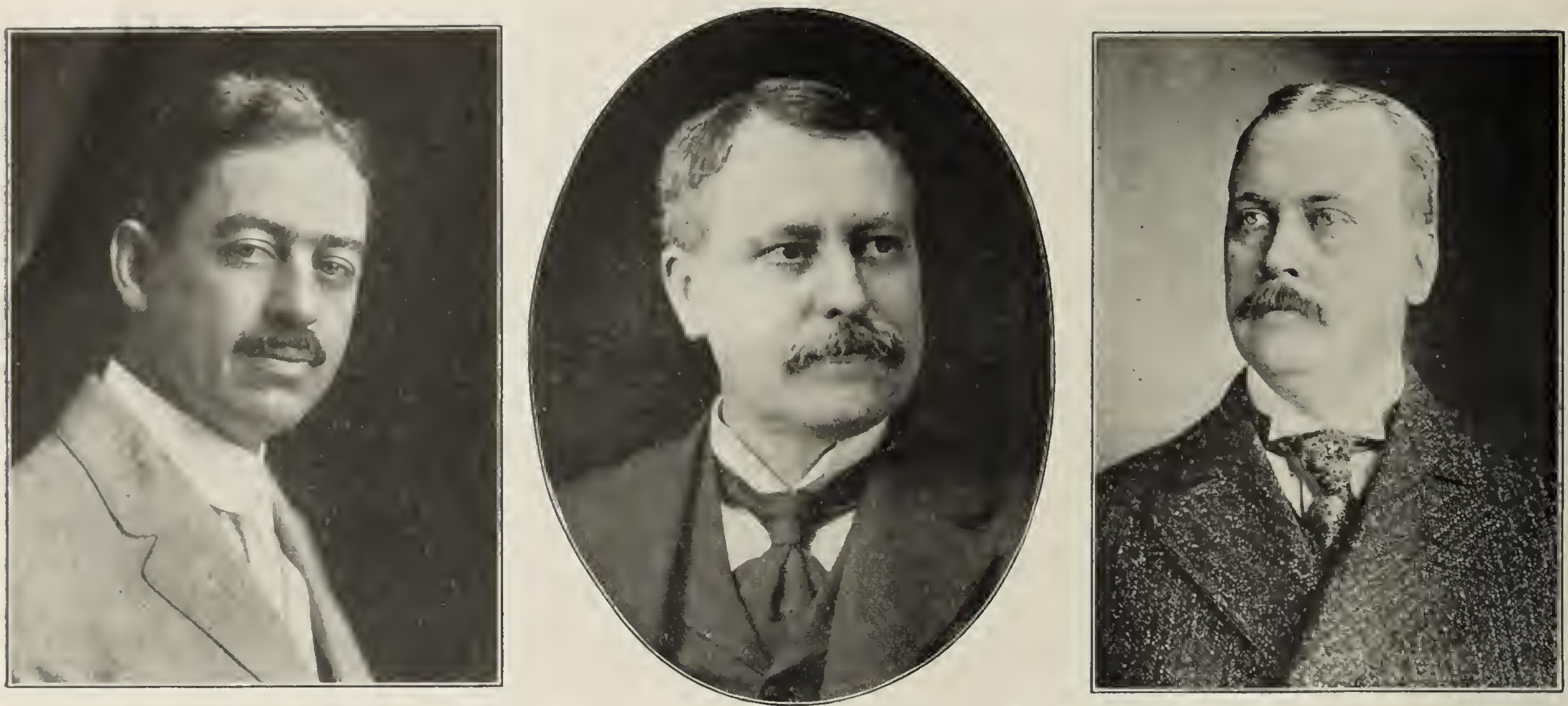
First: Products of complete combustion.

Second: Unused air.

Third: Products of incomplete combustion.

If the gases which issue from a chimney are dark in color, the color is given by minute particles of free carbon in the products of incomplete combustion. Smoke may therefore be specifically defined as the **coloring matter** in the combustion gases, and should not be regarded as the **entire mass** of escaping flue gases. The presence of smoke in the flue gases results from a condition of incomplete combustion and indicates the presence of invisible combustible gases. These invisible combustible gases escape up the chimney unburned, as undeveloped heat. Complete combustion is always attended without smoke. Your kiln stack, therefore, serves, among other things, as a visual barometer to indicate one source of fuel loss in the operation of your periodic kilns.

(*Continued on Page* 714.)



Paul E. Beer, of the Grateless Furnace Co., who is shown at the left, read an interesting paper on combustion. Lemon Parker, of St. Louis, an ex-president of the N. B. M. A., is in the center, and John Sibley, re-elected treasurer, at the right.

Committee Provides Week of Entertainment

Convention week was not all business, for the clayworker attends the annual meetings almost as much for the opportunity they give for recreation from the year's labors as to "talk shop." For this reason there is always a liberal time given to entertainment features.

No other city in the world offers so many possibilities for pleasure-seeking parties and the visiting delegates were given no chance to overlook anything, nor did they appear to desire to.

Monday, the first day of the convention, was given over to the reception committee and those delegates who were not acquainted with the others were given an opportunity to become so. Several excursion parties were taken around the city on sight-seeing trips during the afternoon. In the evening there were many individual theater parties and not a few, more daring than the others, engaged guides and went "slumming."

This is One Corner of the "Cave" Restaurant at the Gruenwald Hotel.

The quaint restaurants in the French, Spanish and Creole quarters found were liberally patronized all the week by clayworkers and the scores of dishes that have made New Orleans famous for its cookery almost lured some to become residents of the Crescent City.

Tuesday evening brought the first official entertainment scheduled. The women delegates were given a theater party at the Orpheum Theater and the fair sex had the novelty of wearing full evening gowns, without wraps, as the weather was delightfully warm, and a decided contrast to the March evenings of the North.

While the women were enjoying the theater party the men were being entertained at a smoker and cabaret show. This was held under the auspices of the N. B. M. A. in the banquet hall of the Grunewald Hotel and was provided by the local entertainment committee.

Some of the Clayworkers Enjoying the Novelty of Winter Golf at the Local Clubs.

A stage at one end of the hall gave the performers ample room for their program, which was as good as any triple bill vaudeville entertainment ever given in any of the largest theaters.

Towards the close of the evening's entertainment the visitors were given a special number which was not on the regular program. Large warehouses belonging to one of the railroads became ablaze and as the banquet hall was on the twelfth or top floor of the Grunewald, which is one of the largest skyscrapers in the city, the guests had a most excellent view of the conflagration which lasted some time and which destroyed the property, despite the hard fight made by the fire department.

No better argument of New Orleans' need of better constructed fireproof buildings could have been given than this fire during the session of the brickmakers in the city.

An ex-president of the N. B. M. A., the president of a paving brick organization and a Southern brickmaker are shown here. W. H. H. Rogers, at the left is the ex-president, having given up his gavel at New Orleans. Robert Nesch, of Kansas City, Mo., in the center, is the president of the Western Paving Brick Manufacturers' Association, and J. M. Jenkins, on the right, of the Jenkins Brick Co., Montgomery, Ala., is the Southern brickmaker.

The following menu was served during the evening:

Queen Olives Celery Dill Pickles Radishes

Assorted Sandwiches
Ham Cheese Smoked Tongue Roast Beef

Milk Fed Chicken Salad Mayonnaise

Pretzels and Saltine Crackers

Biscuit Neapolitaine,
Petit fours

Coffee

High Balls
Draught Beer Bottled Beer
Lithia Water

Cigarettes
Pipe Tobacco
Cigars

Wednesday afternoon was set apart for a boat ride on the Mississippi River but a misty rain caused a change in the plans and this trip was postponed until Thursday.

In the evening the Ancient Order of Chaldeans gave an entertainment to its members at the Cosmopolitan Hotel, an account of which is given elsewhere in this magazine.

Thursday the postponed boat ride was held. This gave the visitors an opportunity of viewing the wonderful rail and water terminals, which are among the finest in the world. The State of Louisiana owns practically all of the city water front. Ocean-going vessels may be seen discharging and taking on cargoes. One of the chief exports is cotton, and great quantities of this staple may be seen on the docks at all seasons of the year. Among the points of interest is the great sugar refinery, the largest in the world, it is said.

Thursday evening the annual banquet was held, this being described in the story of convention proper elsewhere.

Friday afternoon the trip to the Salmen Brick and Lumber Co's. plant was made by special train. This train, provided by the local entertainment committee, was elegantly appointed and the trip, taking more than an hour, went through a section of the country near New Orleans that gave a most excellent view of the semi-tropical foliage and plant life of Louisiana.

At one place the train went over a trestle seven miles in length, crossing a shallow portion of the Gulf of Mexico with Lake Ponchatrain to one side of the track.

The Salmen plant is located at Slidell, about 27 miles from New Orleans and is the largest in that section of the South and one of the largest in the country.

The train stopped at Slidell Station, a handsome brick structure, and the passengers disembarked. Guides took the party first through the dry press plant and then through the stiff mud auger plant. The party was too large to make the trip over the grounds as a unit and it was split up into several sections.

The big Haigh continuous kiln, one of the largest ever constructed, was thoroughly inspected as were the Rogers Uni-Trol dryer, one section of which has only recently been installed. Both of these features of the plant drew considerable interest as the Slidell clay—an exceptionally tender one, has caused considerable trouble. Mr. Salmen seems to have solved his problem with the installation of the Haigh kiln and the Rogers Uni-Trol dryer as he is not only drying the tender clay without cracking it but also is burning it perfectly and economically.

Another feature about the plant that attracted considerable interest was the method of taking the brick from the kilns and loading them into barges for shipment. Loading tracks are arranged on either side of the kilns, one for rail shipments and the other for barge transportation. The brick are set in small crates and are lifted by a huge crane and swung out over the bay into the barges. This bayou is navigable and leads into the Gulf of Mexico, and assures Mr. Salmen of economical transportation.

The brick manufacturing business of the Salmen company, however, is only one portion of Mr. Salmen's interests. The sawmills and planing mills are a great institution in themselves. Then there is the ship building plant at which large ocean and river boats are built and repaired, there being a large dry dock for this purpose.

Mr. Salmen, in addition to having the controlling interests of these institutions is also president of the Bank of Slidell, the Slidell Stores Company, and a director in a score or more of other companies, some of which are in New Orleans.

It was after 5 o'clock before the visitors boarded the special and started back towards New Orleans.

Friday evening was given over to individual sight-seeing parties and dinners. Saturday morning, although a number of the delegates had begun to depart for home, further excursions were arranged and in the afternoon special automobile trips for the women were provided for all those that wanted to take advantage of them.

The executive committee in charge of the local arrangements at New Orleans deserves considerable credit for the manner in which it handled the convention. The members proved to the northern delegates that the much-advertised hospitality of the Southerner is not overrated. This committee was composed of:

Fritz Salmen, chairman; Wm. Allen, H. J. Schneider, D. V. Purington, J. A. Blaffer, George Glover, Charles F. Favrot, A. Baldwin, Jr., E. L. Jahncke and P. H. Enochs.

The entertainment committee which had direct charge of the arrangement for the entertainment of the delegates during their stay in the city was composed of:

Fred W. Salmen, chairman; J. J. Voekel, Victor Demourelle, J. J. Schneider, J. M. McMahon, Peter Judlin, C. N. Adams, Paul F. Jahncke, J. A. Salmen and George R. Larrieu.

The reception committee which saw that the delegates were given every courtesy and which did much to make their visit an enjoyable one, was composed of:

Walter F. Jahncke, chairman; Edward Denton, Newton Kearney, E. H. Michel, C. A. Sporl, H. S. Thomas, J. J. Swiler, W. E. Eddins, L. T. Miles, Ben Schriever and F. Codman Ford.

Women Delegates Enjoy Week of Many Social Functions

One of the pleasant features during convention week was the number of women delegates that were in attendance. Probably never for a number of years were there so many wives, daughters and sweethearts present and most assuredly never did the fair sex take such an active interest in the convention work.

Here are some of the women delegates to the Convention. The first picture is that of Miss Astrid Rosing, the only woman clay product dealer in the country. She hails from Chicago. Mrs. Fritz Salmen, in the center, is the wife of Mr. Salmen, of the Salmen Brick Co., Slidell, La. Mrs. James E. Duncan, Jr., of Washington, Pa., is shown at the right.

The local entertainment committee recognized the presence of the ladies by preparing special entertainments for them and one evening every woman delegate was given a theater party. Boat rides, automobile trips over the city and luncheons kept the time pretty well employed.

Several of the women delegates also gave luncheons during the week. Miss Astrid Rosing, of Chicago, entertained a party of newly made acquaintances on Tuesday at the Hotel Grunewald. Wednesday Mrs. Harold H. Rosenberg, of Chicago, gave a very delightful breakfast to another party at Madame Begue's. Thursday Mrs. L. W. Penfield entertained the women at the Grunewald, and Mrs. Theodore A. Randall gave luncheons to a number of her acquaintances during the week.

Among the women delegates present were:

Mrs. Eben Rodgers, Alton, Ill.
Mrs. W. H. H. Rogers, Rochester, N. Y.
Mrs. C. P. Mayer, Bridgeville, Pa.
Mrs. Theodore A. Randall, Indianapolis, Ind.
Mrs. James Randall, Indianapolis, Ind.
Mrs. Fritz Salmen, Slidell, La.
Miss Salmen, Slidell, La.
Miss A. M. Wallace, Indianapolis, Ind.
Mrs. Charles A. Millar, Toronto, Canada.
Mrs. J. S. McCannell, Milton, Canada.
Mrs. L. W. Penfield, Willoughby, Ohio.
Mrs. W. D. Richardson, Shawnee, Ohio.
Mrs. William Hanley, Bradford, Pa.
Mrs. Edward K. Cormack, Chicago.
Mrs. Gould, Indianapolis, Ind.
Mrs. Charles T. Harris, New York City.
Mrs. Frank B. Dunn, Conneaut, Ohio.
Mrs. George Potts, Indianapolis, Ind.
Mrs. Oliver Baird, Park Hill, Ont.
Mrs. J. M. Jenkins, Birmingham, Ala.
Mrs. H. S. Hamilton, McArthur, Ohio.
Mrs. H. C. Kleymeyer, Evansville, Ind.
Miss Ruth Kleymeyer, Evansville, Ind.
Miss Minnie Kleymeyer, Henderson, Ky.
Mrs. Fred Klutey, Henderson, Ky.
Mrs. James E. Duncan, Jr., Washington, Pa.
Mrs. A. E. Huckins, Champaign, Ill.

Miss A. M. Wallace, shown here, has been assistant secretary N. B. M. A., for a number of years.

Mrs. B. E. Place and daughter, Galion, Ohio.

Mrs. R. O. Perrott, Bucyrus, Ohio.

Miss Perrott, Bucyrus, Ohio.

Mrs. F. R. Kanengeiser, Bessemer, Pa.

Mrs. Warren Ittner, Belleville, Ill.

Miss Ittner, Belleville, Ill.

Mrs. C. C. Blair, Youngstown, Ohio.

Mrs. P. W. Morrow, Chicago.

Mrs. Harold H. Rosenberg, Chicago.

Mrs. Iverson C. Wells, Chicago.

Miss Ethel Snyder, La Prairie, Ont.

A number of bridge parties also marked the week's entertainment of the women delegates and side excursions by individual parties were taken to the various points of interest.

M. E. Gregory, president of the N. B. M. A. in 1908, *on the right, and M. L. Sample, of Jackson, Ala., on the left.*

Alberta Clayworkers Meet at Edmonton

The second annual meeting of the Alberta Clay Products Manufacturers Association was called to order at Edmonton, Alberta, Canada, on the morning of Feb. 24. President W. J. Tregillus delivered a very able and interesting address on the history of brick making and the superiority of clay products over all other building material. At the election of officers the following members were elected for the ensuing year:

President, J. P. Henry, Edmonton; first vice-president, D. V. M. Little, Calgary; second vice-president, J. F. Pollard, Edmonton; third vice-president, R. P. Stewart, Medicine Hat; secretary-treasurer, W. G. Worcester, Calgary.

In addition to the above, W. J. Tregillus was elected to the position of honorary president.

Among the papers and discussions before the convention were notably one by J. O. Williams on the clays and shales of Central Alberta, and one by W. G. Worcester on the physical properties of clays and their relation to practical work. The association voted to have the above papers printed as a matter of record. In addition the association voted to enter upon a strong campaign of publicity work which it is hoped will result in a wider and more extensive use of all building material made of clay.

On Wednesday afternoon, Feb. 25, the delegates were the guests of the Acme Brick Co., of which J. P. Henry, is manager, and were taken by special train over the Canadian Northern to the company's plant at Cannell Siding, about eight miles northwest of Edmonton. The Acme plant is one of the best, if not the best common brick plants, in Western Canada. Among the novel features at this institution is a specially made clay excavator, which takes the place of 25 or more pit men.

On Thursday Feb. 26 the delegates of the Association, as well as those of the Canadian National Association of Builders Exchanges in session in Edmonton at the same time, were the guests of the Edmonton Industrial Association at a noon-day luncheon and an auto trip over the capital city.

At the closing session of the convention it was voted to hold the next annual meeting at Medicine Hat.

WILLIAM HANLEY,
President B. B. A. of A.

J. H. MEAD,
Onondaga Vitrified Brick Co.

H. H. MACDONALD,
Asst. Secty. N. P. B. M. A.

Casson Wants Lincoln Highway Built of Brick

HERBERT N. CASSON,
Efficiency Expert.

Herbert N. Casson, of New York, the efficiency expert, electrified his audience Tuesday at the joint session of the N. B. M. A. and N. P. M. A. Mr. Casson is one of the vice-presidents of the Lincoln Highway Association, and declared the concrete people slipped something through on the brickmaker when they got the concrete clause inserted in the literature of the association.

"I have been convinced that brick is the proper material to use," he said, and I want to say that our executive committee has the question up before it now to strike out the concrete clause and give brick an even break."

Mr. Casson's statement was received by the delegates in a most hearty manner.

"For 6,000 years men have been making brick, but they haven't learned how to sell them," continued Mr. Casson. "Making bricks without straw is primitive; but selling them without jaw, that's just as bad.

"Brickmakers haven't found the newspapers—the greatest selling aids to selling in the world. There are 24,000 newspapers in the United States . Outside of two or three firms, no brickmaker thinks of selling bricks through the newspapers. When they discover the newspapers the whole brick business will be revolutionized."

Mr. Casson wanted to start a movement to have brick instead of concrete used in the construction of the ocean to ocean road.

"It was a mistake," declared Casson, "when the executive committee of the Lincoln association specified concrete instead of brick for the road. We want to get them to change it. And if we can't then the thing for us to do is to start a movement for a Lee Memorial highway, from Richmond through Dixie to Los Angeles, and build it with brick."

W. T. Blackburn of Paris, Ill., followed Mr. Casson with a talk on "Brick Paved Highways as an Investment." He said:

The wording of this subject would imply that such an improvement gave titled interest in the public highway special value to persons or property. The title of the highway is usually vested in the owners of the adjacent property and only subject to an easement held by the public for the purpose implied in the purchase or condemnation as the case might have been, and should the roadway cease to be used for that purpose the control and title would revert back to the owners of the abutting property.

Wealth, or those things of value worthy of an investment, can only be obtained in their original elements from the development of the mineral or agricultural resources of the earth—the iron, coal, copper, gold and silver, the wheat, oats, barley, cotton, meats and wool; or such products of whatever character can only be thus obtained.

These elements of wealth are not taken from a single warehouse or depository, but are distributed throughout the length and breadth of this fertile land in their undeveloped condition. In the early settlement of this country and development of its civilization, the human family was in a large measure independent of each other. The weaving and spinning was done in the immediate household; the fuel taken from the forest; meats from the animals that roamed the undeveloped fields; the minerals smelted and forged, reducing them to their commercial uses in the immediate vicinity of their production. These were days when the demands were not so great, and the scientific development less pronounced, but as the population increased there came a demand for specialized labor; the factory sprung up; farm machinery, structural material and better homes were demanded; the housewife no longer did the carding, spinning and weaving; these things all being manufactured and refined by certain classes, thus developing the segregation of the production of raw material and the manufacture of the finished product. This condition continued to develop and multiply until great cities were built, and the great wealth of the country began to be concentrated. This condition created demands for means of communication and transportation, first, developed along the rivers and great water-ways of the land, then came that wonderful development of the privately owned highway system—the railroads of the country, which are in their nature and legal contemplation—highways. They have been developed to the highest state of efficiency, and the public have willingly and uncomplainingly contributed to their support to such an extent as to reward their promoters and operators with somewhat more than a reasonable profit.

This development has lead up to the demand for the more permanent highway connecting the source of production with the railways or waterways that carry these products to their places of manufacture. This improvement should be done at the expense of the general public. These demands are not local ones and depending upon the local surroundings for their development, construction and maintenance. The objection has often been heard that since the cities or places of concentrated wealth have made their own improvements, the several rural districts should, therefore, bear the burden of building these public highways that are of necessity for the benefit of the public of that particular county, state or nation, and I, therefore, reason that the conception of the law is correct in the application of a general tax for these improvements, as they will be an asset not only to the restricted district, but be of value to the entire populus of the several units involved, selected and defined in accordance with the importance of the improvements contemplated. There is no doubt a special benefit that should be borne by the locality especially benefited. If you could convince the general taxpayer that for every dollar expended that he would receive two, then loan him the one and guarantee the return of the two, I feel sure that he would accept of the opportunity, and yet that seems to be the opportunity presented to the public, and the farmer and truck-gardener in particular, in the brick-paved highway. The little that the brick roads would cost you personally amounts to nothing compared with the amount that such roads would add to your yearly income, increase the value of your farm, and add in an untold measure to the happiness of your family. It has been estimated that ninety per cent of the criminals in the land originate in the city. You are spending immense sums for the building of court houses, jails and state prisons. If like sums should be spent in the improvement of your highways and the general development of the resources of your country, giving employment to the unemployed instead of providing means for the employment for criminals from the prison, it would solve many economic questions; by sending if need be greater sums in beautifying the lives and interest of the rural districts and thus reducing to the minimum the population of our asylums and prisons we would be making an investment that would do more for the uplifting of humanity than could be done if one-half of the wealth of the nation spent in the persecution and confinement in prison of all the criminal classes. Invest your money in eliminating the criminals rather than in their punishment.

As to your yearly income and increase in value of your farmlands the following facts may help to make clear to you. I have recently observed the revenue from two separate farms of three hundred and twenty acres, each located in the corn belt of Illinois; one at the end of a four-mile brick-paved road; the other at the end of a four-mile mud road. These farms should produce under the ordinary location of crops, annually two hundred and eighty tons of corn, eighty tons of oats, and one hundred and twenty tons of hay, or four hundred and eighty tons in the aggregate to be delivered over four miles

A group of paving brick men, with one lone machinery man. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association is in the center of the first group of three. Harry Renkert, of the Metropolitan Paving Brick Co., Canton, Ohio, and W. T. Blackburn, of the Dunn Wire-Cut-Lug Brick Co., are the center pair and F. B. Dunn, of the Dunn Wire-Cut-Lug Block fame, Herbert C. Moatz, of the Deckman-Duty Brick Co., and E. L. Hess, of the E. M. Freese & Co., are in the right hand group.

of roadway. On the brick road there has been delivered eleven tons of grains in one trip by one team, using five wagons, while on the earth road two tons were all that could be delivered by a similar team. The haul being four miles in both cases, and, as they could make three trip a day, twenty-four miles team travel, the team on the earth road could deliver six tons per day at a cost for team and wagon of $4.50, thus making a cost of 75 cents per ton for the four-mile haul. On the brick road the delivery was 33 tons per day at a cost of 19.7 cents per ton on a four-mile haul. A difference of 55 cents per ton in the cost of delivery in favor of the brick road, or a difference in cost of $264 on the 480 tons delivered. This is only a small per cent of the actual loss to the farmer living on the earth road, as he has had to sell his grain at a time when the roads were in condition that it could be delivered without regard to the price of this product. From actual experience it has been demonstrated that this would represent a loss of $1.50 per ton on corn, $2.50 on oats, and $5 per ton on his hay, making a loss in the aggregate of $920, on account of not being able to deliver at the best market price. This, with the loss in cost of delivering, makes $1,184, or 10 per cent on an investment of $11,840, an increase in value of $36 per acre on his 320-acre farm. This represents the investment in a nine-foot brick highway that has cost the tax-payers of the township $10,000 per mile, or if all of the principal highways of the township could be improved, would only represent a tax on all of the property of $10 per acre. These brick roads are not a liability, they are an asset. They don't cost you money—they make you money. It isn't a question of whether you can afford brick roads—the question is, how can you get money enough together to do without them. Bad roads cost like the mischief. The most expensive road is the one you cannot use.

The cost of a brick road ten feet in width, at $1,100 per foot in width per mile, as compared with the roads being built of other materials at a cost of $550 per foot in width per mile, at the end of a twenty-year period, has been demonstrated to be $10,000 per mile less expensive after adding to the original cost in each instance five per cent on original cost, together with the maintenance in either case for the twenty year period. This does not take into account the expense and inconvenience due to the repairs and re-surfacing of the cheaper roadway, nor does it give credit to the brick road for being in a serviceable condition at all times for the twenty-year period. Many brick streets are today in perfect condition that have withstood the traffic and the effect of the elements for more than twenty years.

The term permanent roadway is often misapplied; however, it has been said by a prominent authority that "the life of a well-constructed brick pavement cannot be estimated with any great degree of exactness; first, because the traffic conditions are constantly changing and, second, because no brick pavement, which has been constructed in accordance with the best modern practice, has yet worn out. The amount of wear sustained by given pavements during comparatively long periods of years have been determined in several instances, but have usually been so small as to make the probable term of service appear almost indefinite." From such evidence we may conclude that the properly constructed brick road is entitled to a life of twenty years without repair, or a period long enough to allow us to forget that the original construction ever cost anything. The original cost is as far as many of us can see. Benefits are too seldom looked into. We are inclined to complain of taxation as a burden instead of a blessing, and the real foundation of our civilization.

The greatest asset of the most substantial nature are transportation and agriculture. Neither can be fully developed without the other.

The total tonnage drawn over the highway at this time may be quite small, but upon the improvement and development of the road and the resources of the country the tonnage may be increased many tons. While the requirements of today may be only ten to twenty tons, these improved conditions has caused this road to become a main highway, with from two hundred to three hundred vehicles per day, many of them three to six-ton trucks. Not only should the improvement be made to care for the present traffic, but should be improved to provide for a far greater traffic, not only in the number of vehicles, but the character of the vehicles. The traffic which was once only local, confined to teams from a few of the neighboring towns and villages, has become inter-state and almost national in charater.

Such roadways should have a firm, unyielding foundation, drained so that the water will not remain in side ditches or be held in the sub-soil higher than within eighteen inches of the wearing surface. Upon the foundation it has been found necessary to provide a sand-cushion of sufficient depth to compensate for the irregularities in the base and the difference in the depth of the units used in the wearing surface. This cushion may be of a specified depth from one to two inches, preferably not more than one and one-half inches. The most important feature is that this sand-cushion should be made firm and evenly compacted, that the bricks may rest thereon without embedding them, as the space between the bricks should be left open to receive the bonding material. The specifications should make provision for the character of sand to be used and the proper preparation of the sand bed. The material for the wearing surface should be of such a character as to withstand the action of the elements for all time. If these requirements be carried out, what other material could fulfill these specifications? Such material would be an asset for all time, or until it should be destroyed by impact or abrasion, and if perfect construction could be obtained we might truthfully claim a permanent investment. As, certainly the elements of grade, location, drainage and foundation are perment, and if brick of such character as can only be injured or destroyed by a blow or abrasion be furnished, and these of such quality as will meet the requirements of all other surfacing material, you certainly have the peculiar advantage in that they are not to be affected by frost, nor fire, nor time, and now that the quality of abrasion and impact can so definitely be determined you are only subjected to the requirements of proper construction. The material should be of such character and placed in the roadway in such manner as to offer the least resistance to travel. The surface should be made smooth and so bonded together as to become monolithic. Proper specifications should provide that the bonding material should surround every unit, and that this bond should be of a permanent and enduring character. These highways should be so improved that they will require the minimum of maintenance, and that they will last in a serviceable condition longer than the life of the bond issue created to provide for this investment. (Applause.)

The reading of Mr. Blackburn's paper closed the joint session.

Windsor Brick Co. Joins Dunn Licensees.

The Windsor Brick Company, of Akron, Ohio, is the latest paving brick manufacturer to join the licensees of the Dunn Wire-Cut-Lug Brick Company, and as soon as the Dunn cutter is installed will begin to turn its output into the wire-cut-lug block.

Uniform Specifications Are Sought by Paving Men

DECLARING for a standard specification that will be uniform throughout the United States the board of directors of the National Paving Brick Manufacturers' Association appointed a committee at the meeting held at New Orleans during the N. B. M. A. convention the week of March 2-7 and this special body will confer with the American Society for Standardization of Paving Materials and other municipal and engineering bodies with the idea of reaching some definite conclusions.

While the association believes its No. 1 specifications are the best to be had, it realizes the fact that certain concessions may be made without causing any serious trouble and is manifesting a desire to meet with committees from the other organizations and effect a compromise.

As the matter stands today there are almost as many specifications in existence as there are municipalities, each engineer having his own ideas about these things. With a uniform specification, recognized by the engineering societies, the Standardization society and the N. P. B. M. A., there will be a decided improvement in the methods employed in brick street and road construction.

The committee to conduct the revision is composed of Will P. Blair, H. S. Renkert, W. T. Blackburn, Eben Rodgers and C. C. Blair. This committee will call for suggestions from every paving block manufacturer in the country and also confer with collegiate institutions, road builders, and other interested persons.

Meetings to consider the revisions will be called at an early date and the specifications will be published as soon as they are decided.

The N. P. B. M. A. board of directors held several sessions during the week of the convention. The first session was scheduled to be held Monday afternoon, but the failure of President Charles J. Deckman to arrive on time, because of a severe storm which he passed through in mid-ocean while en route to New Orleans, caused a postponement and it was not until Tuesday that a meeting was held.

Some score or more of members and directors came to the convention in a special car, while others took a more leisurely trip. The special car idea was used as a proselyting excursion and three new members were added to the roster of the association as a result of it.

Through delays en route, caused by a freight wreck ahead, some of the party that had engaged reservations on the car were missed. Among these were: Mr. and Mrs. Harry Renkert, of Youngstown, Ohio; Mr. and Mrs. W. D. Richardson, Shawnee, Ohio; Mr. and Mrs. B. E. Place, Galion, Ohio; Frank T. Manning, Portsmouth, Ohio; R. B. Keplinger, Canton, Ohio, and S. C. Peebles, Portsmouth, Ohio.

Those that made the trip in the special car were: Will P. Blair, H. H. Macdonald, Spencer M. Duty, Mr. and Mrs. Rudolph Otto, G. S. Brubaker, Mr. and Mrs. Frank Dunn, Herbert Moatz, W. R. Cunningham and two sons, John H. Qualman, John Qualman, Jr., D. D. Deeds and Mr. Pratt.

The car was boarded at Cleveland. A short stop was made at Cincinnati and another at Chattanooga. It was planned to stop at this latter place and make an inspection of the paving brick plants in that locality, but the delay caused by the wreck changed the plans and the Chattanooga contingent boarded the train at that point, only after a brief stop.

The directors and other members in the party left Saturday on a special trip through the south. Stops were made at two or three points for inspection of plants and a study of the local conditions.

Machine Men Elect Boss as President

WITH the election of John C. Boss, of Elkhart, Ind., as president and R. C. Bennett, of the Wellington Machine Co., of Wellington, Ohio, as secretary, the National Clay Machinery Association took a new lease on life at its annual meeting in New Orleans, March 3. A second session was held Thursday, March 5, at which time a reorganization of the credit feature of the association was perfected.

Besides the election of the two officers mentioned at the first session a new board of directors composed of R. T. Perrott of the American Clay Machinery Co., A. A. Oldham of the Bonnot Company and J. F. Aten of Arnold-Creager Company was elected.

Both sessions of the association were well attended by the members attending the N. B. M. A. convention and were marked by enthusiasm. Several important matters were discussed on the first day and action on these followed the second day.

Mr. Boss, the new president, is one of the best known men in the trade and, standing as he does with no affiliation with any one concern in any particular line, and possessing a great amount of aggressiveness and an indomitable courage, he will make a leader that will make the association, as reorganized, one of great usefulness in its field.

Mr. Bennett is general manager of the Wellington Machine Company and is a young man of the modern school type, an untiring worker and possesses great executive ability.

The association plans to take a more active interest in the work which it is supposed to consider and 1914 probably will find frequent meetings of the membership.

POTTER'S COURSE AT OHIO UNIVERSITY.

Beginning Monday, March 23, the Ohio State University will begin a course of instruction for practical potters. Lectures will be given in Room 125, in Lord Hall, at the University, and demonstrations in the laboratories and kiln rooms immediately beneath.

The course will be completed Saturday, the 28th, so making one week of study that will be of great benefit to the men who take it, and who wish to learn something of the potter's art. The cost, so far as the University is concerned, will be nominal, a matriculation fee of $2.00 being all that is required. The cost of living at the University can be kept as low as $2.00 a day, so it will be seen that no great outlay is necessary on the part of the student.

Full information will be sent to everyone interested, who will write to Edward Orton, Jr., director of the Department of Ceramic Engineering, Ohio State University, Columbus, Ohio.

Ask Clayworkers for Brick Exhibits

TWO great opportunities for giving burned clay products world-wide publicity have been offered the clayworkers of the nation within the past week. One comes from the Panama-Pacific International Exposition at San Francisco and the other from the Exposition of Big Ideas, at New Orleans.

The first proposition includes an invitation to all clayworkers to send exhibits to San Francisco, with one-way freight charges, free space in the Palace of Mines and Metallurgy, free fire and police protection, free general janitor service and every convenience offered all other industrial lines, such as cheap power and light service.

The second may mean the building of the New Orleans exposition of brick throughout, there being some one hundred and fifty or more buildings in the plan, and a nation-wide newspaper campaign conducted by the exposition company referring to the special feature of brick is included in the suggestion.

It is possible that out of the two invitations a great movement to bring brick and other burned clay constructive material prominently before the country will be launched.

For the San Francisco Exposition it is suggested that not only individual exhibits be sent by the manufacturers of clay products and the makers of clayworking machinery, but that some attempt be made to erect a model burned-clay residence building at a moderate cost on the grounds of the exposition, the same to show not only the proper construction, but the comparative cost.

The material for this building could be sent to San Francisco by the clayworkers of the nation and it is possible that the International Bricklayers Union could be interested in donating the labor. This suggestion comes from "Brick and Clay Record" and correspondence with some of the national clay products associations and the bricklayers union has been had with the view of interesting these bodies in the project.

The New Orleans proposition was made to the National Brick Manufacturers' Association following a talk made at the convention by Herbert Kaufmann, director general of the exposition. Mr. Kaufmann declared that the directors had determined to make the exposition a permanent one for the first time in the history of international shows and that brick as a building material had been given deep consideration.

As a publicity movement on the part of the brickmakers it was suggested that the clayworkers of the nation contribute the material. The proposition was submitted to the executive committee for a report and it is likely that some action one way or the other will be taken at an early date.

If the suggestion considered is accepted the clayworkers will be appealed to send an offering of about 10,000,000 brick to New Orleans, as that number will be required and if one thousand brick makers send 1,000 brick each or two thousand, 500 brick each, the necessary number will be obtained.

The invitation from the San Francisco Exposition came in the following letter, which was received by "Brick and Clay Record" and which was signed by Charles E. Van Barneveld, chief of the Department of Mines and Metallurgy:

> The Panama-Pacific International Exposition offers manufacturers of clay products in the form of building materials, pottery-ware, etc., an unusual opportunity to effectively impress upon the public the magnificence of the clay industry, the great importance of clay products, the wide and varied uses to which they are put.
>
> Very few people realize that clay is third in importance of the mineral products of the United States, being exceeded only by coal and iron which occupy respectively first and second place.
>
> The fact of the matter is that the clay industry is the poorest advertised industry in the country. The public has no conception of its importance and of the actual and proven superiority of many of its products over competitive material.
>
> A generous space has been set aside in the Palace of Mines and Metallurgy for your exhibits. Application for space are being received and filed in the order of their receipt. Allotment of space will be made shortly and the building will be completed and ready for installation early in July, 1914.
>
> The Panama-Pacific International Exposition is providing without cost to accepted exhibitors the housing and necessary space for their exhibits, ample fire and police protection, general janitor service, splendid transportation facilities, one-way freight charge and free return of exhibits to point of origin, general lighting of the building, cheap electric current for special lighting or power service. Exhibitors are assured of an immense audience drawn from the four quarters of the globe and they have the opportunity of securing valuable awards by the International Jury.
>
> Every American manufacturer and business man is reminded of the fact that this Exposition is the Nation's official celebration of the successful completion of an undertaking of which every American citizen is justly proud. As a nation we are young. As a world power we are scarcely 50 years old. Yet we have carried through the most stupendous engineering task ever conceived. We have invited the World to come and see wherein we excel. It is, therfore, the privilege and the duty of each industry to properly represent its activities, each industry being in turn the host to all others.
>
> This department is at your service and will gladly do everything possible to further the interests of the clay and clay products industry. Correspondence in invited.

Following the receipt of this letter "Brick and Clay Record" wrote Mr. Van Barneveld asking him if proper space would be given the brickmakers to also erect a suitable brick residence on the grounds and if the same freight rate inducements offered individual exhibits would be given.

At the same time letters were written to several of the national associations of clayworkers asking them if they would interest themselves in the project.

Both the invitations from New Orleans and San Francisco appear to give the clayworkers an opportunity to obtain some very cheap national publicity and are, at least, worth while considering.

Shows Permanency of Brick Roads.

The National Paving Brick Manufacturers' Association had an exhibit of good paving on the mezzanine floor. A slab of brick pavement taken from the streets of Columbus, Ohio, was shown, to prove vitrified block's permanency. This pavement had been laid 19 years and the brick showed practically no wear whatever, despite heavy traffic conditions.

Clay Land Awaits Development.

Fortune and Nature are alike feminine in the erratic ways in which their bounty is distributed. Fortune's favorites find Nature's vast desposits and develop untold wealth, while vast tracts of unrelenting soil are tilled with sweating brows, for a pittance. In Colorado, twelve miles west of Denver, a compact body of mineral wealth, more than 1700 acres of commercial product, lies, awaiting the magic touch that will make Fortune smile upon the men who first invade the field so richly endowed by Nature. This property contains clay of great value, limestone, silica rock, cement shales, marl fertilizer and building stone—not concealed below the surface, but standing 300 to 700 feet above the creek level, for a distance of three miles. An estimated tonnage of 276,000,000 is ready for development, and several concerns have expressed a willingness to build independent plants and buy the raw material. More than 100,000 tons of lime rock a year can be delivered to the beet sugar mills, 75,000 tons to smelters, 300,000 tons of crushed silica rock to railroads as ballast, and for road surfacing. The property is held by Edward F. Lamb, of Denver, Colo., who is prepared to incorporate a company to equip and operate the entire deposit. Interested clayworkers and others may write Mr. Lamb for fuller information.

A New Man in the Fire Brick Field

The Salina Coal and Clay Company Plans a Great Enterprise in the Pittsburgh District, where Clay and Market are Exceptional

In introducing E. A. Ferrin, of Greensburg, Pa., to its army of readers, "Brick and Clay Record" calls their attention to the fact that this immense enterprise is being started under ideal conditions of brick-plant engineering and efficiency.

WHAT PROMISES to be one of the large producing fire-brick plants of the country is in course of erection at Salina, Pa. It will be operated by the Salina Coal & Clay Co., a corporation with an authorized capital stock of $175,000. A daily capacity of 100,000 high grade fire brick will be reached with modern machinery, in a plant that has been designed by well known brick-works engineers, who have incorporated every approved means of cost reduction and manufacturing economy. With a low production cost, a favorable location, from a freight standpoint, and a market near by that is said to be the largest in the world, this plant starts with every promise of a highly successful future.

Salina fire clay has a high reputation. The Kier Fire Brick Company, operating at Salina for the past forty years, has established the excellence of the material. So it is with a tried material that the new plant enters a market that is ready to receive its output.

Salina is in the Pittsburgh freight district and enjoys very low rates east and south. Pittsburgh, itself, takes millions of fire brick, annually.

Thus the requisites of successful brick plant operation are met—the tested clay, the well planned works and the nearby market. All that remains is good management.

E. A. Ferrin, of Greensburg, Pa., is in active charge of the work. While not a practical brickmaker, he has sufficient native shrewdness and caution to make the most exhaustive inquiries before launching the new company. He found that there would be no difficulty in making good fire brick with the clay, nor in finding a good market for the brick, after it was made. He took competent engineers to the plant site and received the benefit of their advice before going ahead. He made sure of success befor he made a plunge.

And "plunge" is the word. The property owned by the Salina Coal & Clay Co. comprises more than 700 acres of Upper and Lower Vein Freeport Coal, more than 1,150 acres containing deposits of Bolivar Flint Fire Clay averaging ten feet in thickness and heavy measures of shaly clays more than twenty-five feet thick. The surface land, suitable for the location of shafts and works is more than 140 acres.

All of the property is located in Westmoreland county, Penna., in one of the richest bituminous coal districts in the United States. It will be seen, therefore, that the Salina Coal & Clay Co., will have plenty of fuel for their own uses, besides cutting some figure in the coal supply of western Pennsylvania. In addition to its output of fire brick, and fire clay, this company figures upon shipping between 700 and 800 tons of coal, daily. This output—brick and coal—will load twenty-eight to thirty freight cars every working day throughout the year.

E. A. FERRIN,
Gen. Mgr., Salina Coal & Clay Co.

The coming of men like E. A. Ferrin into the brickmaking world says volumes for the ultimate prosperity of the industry. It means that large plants are to be the rule—plants in which modern methods and modern efficiency will produce a product that will command a high price, and yet be made at a low cost. It means that clayworking is ready to take its place among the "big business" enterprises of the country—with coal, and iron and electricity.

Clayworkers Hold Big Convention in Chicago.

As this number of "Brick and Clay Record" goes to press clayworkers from Illinois, Iowa, Indiana, Minnesota and Wisconsin are gathering in Chicago for the purpose of discussing the advisability of organizing an open price policy association, covering all the various branches of the industry in the states mentioned.

The meeting was called at the instance of the Illinois Clay Manufacturers' Association as a result of that body's action at the last annual convention in adjourning to meet at this time for the purpose of hearing a report of a special committee on the same subject.

Following the investigation of this committee which covered the subject pretty thoroughly it was deemed advisable to extend the invitation to clayworkers in some of the adjoining states.

It is barely possible that none of the other states will find it practical to take up the work in such a large unit.

Group of Chaldeans on special train caught by camera man at Mobile, Ala., en route to New Orleans.

Chaldeans and New Orleans

Lodge of Clayworkers Have Delightful Trip to Convention City

To correct any impression that may exist in the industry the Ancient Order of Chaldeans announces it is not affiliated with any other organization in the clay product field. The reason for this is obvious and scarcely needs explanation here, but, inasmuch as the idea may become prevalent that the Order is working under and with the N. B. M. A., the Supreme Council of High Priests desires to prevent any erroneous impression.

The Chaldeans are organized as a secret lodge or order of clayworkers, with the sole purpose of creating and maintaining a fraternal spirit among its members and assisting in every way possible in obtaining a like spirit among all clayworkers. Being secret in its nature, there would be a likelihood of causing some embarrassment to any organization formed along industrial lines, especially as such affiliation might cause the public to be suspicious of price combinations and other illegal agreements.

WHILE the plans of the Ancient Order of Chaldeans to hold an initiation of new members and institute a new temple in New Orleans, during the N. B. M. A. convention were not carried out as announced, owing to some confusion as to the arrangements for a suitable lodge room, the new secret order of clayworkers, with nearly one hundred and fifty registered members in the city, took a prominent part in the week's program, and the spirit of goodfellowship that was manifested convinced the supreme officers that a popular chord had been struck with the young order.

Some of the Canadian Chaldeans taking a sun bath at Montgomery, Ala. Secretary Walsh is second from left. J. E. Frid is on the right.

Three Chaldeans "taking a stretch" at Birmingham, Ala. Geo. Vater is on the left, H. H. Rosenberg in center and E. G. Beichler on right.

Plans are to be made at a conference of the supreme officers to promote the interests of the Order in a most aggressive manner during 1914 and it is more probable that by the time of the next convention that the new secret society will have grown to one of considerable importance.

Wednesday night was the evening selected for the initiation and institution of the new temple, but upon the arrival of the Chaldean Special bearing delegates to the convention, it was found that, through some confusion, a part of the regular N. B. M. A. program had overlapped and the time expected to be used by the Chaldeans was occupied.

Rather than detract from any of the regular program and to prevent any conflicting date the Supreme officers held a consultation and decided to abandon their plans.

Wednesday, however, it was found, through a force of fortunate circumstances, that the night program of the N. B.

A. R. ROOT AND H. H. ROSENBERG.

Mr. Root has never missed an N. B. M. A. convention, while this is the first one Mr. Rosenberg has attended.

M. A. would have to be omitted and hasty preparations were made by the Chaldeans to give some sort of entertainment for the members present.

With only a few hours in which to make any arrangements the dining room at the Cosmopolitan Hotel was rented, although this was not assured until 6 o'clock that evening. It was out of the question to attempt to put on the regular ceremonies of the lodge or to attempt any initiatory work as the room was inadequate for that purpose.

Theatrical booking agencies were brought into play, however, and a complete vaudeville program arranged. Taking into consideration that a very short time was given for the arrangement and that a musician's strike at the last hour caused a delay in obtaining music, the evening's entertainment was an unusually enjoyable one.

W. G. POATE AND H. R. SYKES,

Two Bull-Riders who helped the boys have a good time on the special and in New Orleans.

A lunch, refreshments and cigars were served and it was nearly midnight before the closing scene was drawn over the evening's enjoyment.

The Chaldeans were in evidence everywhere during the week. About one hundred new members were added to the roster, some of these coming as far as Saskatchewan, Canada, on the north, and Massachusetts, on the east, to participate in the convention.

The Chaldean Special took to New Orleans nearly a hundred clayworkers and their wives or daughters, every male member of whom was a member of the Order.

The Special left Chicago Saturday night on scheduled time. A special Pullman sleeper from Toronto, bearing the Canadian delegates and their wives, which had arrived during the day, was attached to the Special. This party was headed by C. E. Millar, president of the Canadian National Clayworkers' Association, and John R. Walsh, the secretary. It was composed of the following:

Mr. and Mrs. C. A. Millar, Toronto.
Mr. and Mrs. J. S. McCannell, Milton, Ont.
Mr. and Mrs. Oliver Baird, Park Hill, Ont.
Miss Ethel Snyder, LaPrairie, Ont.
Alex Snyder, LaPrairie, Ont.
John R. Walsh, Toronto.
W. G. Poate, Estevan, Sask., Ont.
A. H. Wagstaff, Toronto.
James Bell, Toronto.
G. J. Smith, Toronto.
S. Hill, Hamilton, Ont.
J. E. Frid, Hamilton, Ont.

A Group of Chaldeans and their wives on the station platform at Birmingham, Ala.

There also was quite a contingent from the Northwest and from the East to board the special before it left Chicago. F. Leutz, of Hebron, N. Dak., being, perhaps, one of the furthest away in the states to take advantage of the goodfellowship which he had been promised would exist among the passengers.

There were quite a number from Des Moines and other points in Iowa and from Minneapolis and other points in Minnesota.

The first stop of the train was at Indianapolis, where passengers were taken aboard. As the train was due there at 3:20 Sunday morning arrangements were made to take care of the passengers at this point without disturbing any of the other passengers.

The Special reached Cincinnati on time and made a stop there of an hour. Through some confusion among the railroad employes at the station a number of clayworkers who had planned to board the train went by another route, believing that the Special had been abandoned.

With the departure of the train from Cincinnati came the signal for the reception committee of the Chaldeans to begin its first real duty. All the women in the party were asked to take part in an informal reception in the observation car. Each was made acquainted with the other. The men likewise were introduced to the women and to each other in the same manner. Then, at each station, as the Special took on passengers, these boarded the observation or rear coach and were introduced to each of the entire party on board.

By the time the train had reached New Orleans everyone on the train knew each other by the first name, a fact that made the week's visit in the Crescent City a most enjoyable one.

The first stop after Cincinnati was at Louisville, the train arriving there about 11 o'clock Sunday morning on time. A stop sufficiently long to take on passengers was made and the trip southward was continued. The Special arrived at Glasgow Junction, Ky., about 2 p. m., While en route from Louisville a vote was taken among the passengers as to whether a stop should be made at Mammoth Cave and it was unanimous, practically.

A special train had been arranged for by wire and when the Chaldeans reached Glasgow Junction it was in waiting.

The trip to the Cave took more than an hour, the trail, for such it was, being a winding up-hill journey through the hills of that heavily timbered country, and over a narrow-gauged line.

This is how the Chaldeans looked just before they entered Mammoth Cave.

At Mammoth Cave the Chaldeans lost no time in getting into their Cave suits—the women in bloomers and the men in overalls provided for that purpose. Just before leaving the surface of the earth the party, or at least a portion of it, posed for a special picture. It was not a very desirable day for photography, heavy clouds overhanging, and giving the appearance of early twilight, but P. E. Dutcher, of the Bucyrus Company, South Milwaukee, Wis., and one of the liveliest Chaldeans in the crowd, having been appointed the official Cave photographer, managed to get a pretty fair picture as the illustration that accompanies this story will attest.

The entrance into the Cave was made at 3 p. m., and it took nearly three hours to make the trip through the subterranean wonders. A competent guide accompanied the party, of course, and explained each point of interest. Only one route—there being three in all, was taken, as the time was limited, but this was sufficient to convince the tourists that the many things said about the Cave have not been overplayed and that, truly, Mammoth Cave is one of the Seven Wonders of the World.

Entrance to Mammoth Cave looking from the inside.

The costumes worn by the tourists made some of them the subject of considerable merriment. W. C. Kirkpatrick, the efficiency engineer of Chicago, for instance, drew one of the suits of overalls intended for men of an average size. It came within several feet being long enough to cover his nether extremities. The coat struck him in the middle of the back and the sleeves reached to his elbows. Mr. Kirkpatrick stands considerably more than six feet in height.

Harley Fate, with a girth that breaks all records in the clay industry, after trying two or three pair of overalls and ripping them asunder, gave up in despair and procured a blanket from the hotel, and, like Big Sweat-in-the-Face, chief of the Sioux, made the descent, his famous torso being fully protected from the dampness in the cave which never made its appearance.

Star chamber, Mammoth Cave, one of the startling wonders of the cavern.

Fate, however, complains, that while every accommodation is made for protection to the clothes no automatic wind-restorer is provided. This appeared to have been a serious omission, especially in his case, as there was a long climb ahead and the journey was for many miles.

It was 7 p. m. before the exit from the Cave was made and the party were surprised to see a light fall of snow. The Cave Special was again boarded for the return to the Chaldean Special which was waiting at Glasgow Junction some ten or twelve miles away.

A special stop of the Chaldean train was made at Bowling Green, Ky., to take on Aaron Phillips, who had insisted that he must ride with the Chaldeans. No further stop was made, however, until the train arrived at Nashville. Additional passengers were picked up at this point and the journey continued.

Decatur, Ala., found passengers in waiting, although the hour was after midnight. Montgomery was reached about daylight and several boarded the train there. Because of the extra time consumed at Mammoth Cave the Special was more than two hours late in arriving at Birmingham, where a stop was made to take on more passengers and give the tourists a chance to stretch. The photographer was busy again at this point—the first daylight opportunity for taking pictures since leaving Mammoth Cave.

P. W. Morrow, Northwestern Passenger Agent for the L. & N. R. R., who was personally conducting the tour, assured the Chaldeans that he would take the train into New Orleans on time. There was no further stop scheduled until Mobile was reached, and most of the journey from there on was made at a rate better than a mile a minute.

Mobile was reached about noon and a stop of some ten or fifteen minutes was made. A photographer had been telegraphed for and was at the station. The greater share of the Chaldeans formed a group on the station platform and a picture was taken, a copy of which appears with this article.

The special passed along the famous Gulf Coast all afternoon, at times crossing bays several miles long and not infrequently going across stretches of the Gulf itself, in one case over a trestle fully seven miles in length.

The first signs of the semi-tropical plants were seen along this last stretch of the trip. Towering palms, mammoth ferns, and the other vegetation characteristic of the land drew much attention from the tourists and indicated the approach to New Orleans. Growing gardens, an occasional orange tree, a fig tree or a banana palm were of especial interest. Groups of bathers in the Gulf bleaches also proved of a great source of wonder to those clayworkers who lived in the ice-bound north, as did the Summer attire of the natives.

The Special arrived at New Orleans a few minutes after 4 o'clock that afternoon—Monday, practically on time, having made up the two hours lost at Mammoth Cave, as was promised by the L. & N. road

Three Canadian Chaldeans. John R. Walsh, secretary of the Canadian National Clay Manufacturers' Association, is on the left. J. M. McCannell, of Milton, Ont., is in the center, and J. E. Frid, of Hamilton, Ont., on the right.

It had been arranged to march to the Grunewald Hotel in a body, but the plan was changed at the last minute and the Chaldeans, with their wives and daughters, boarded street cars and taxi cabs and met later in the lobby where arrangements were made for sleeping accommodations. There was some confusion as to rooms, but this was mainly because many of the delegates had made reservations themselves and had failed to leave this detail to the Chaldean committee. With but few exceptions the reservations made by the Chaldeans in advance were obtained, despite the great pressure brought to bear on the hotels.

From the moment they reached New Orleans the Chaldeans were in evidence and the little gold button showing the emblem of the Order—the man-headed-winged bull of ancient Chaldea, were seen on clayworkers in every group of delegates about convention headquarters.

Headquarters were not to be obtained for the Chaldeans until Wednesday afternoon, when space was provided on the mezzanine floor. Many new members were enrolled, which, with the 419 enrolled last year at Chicago, makes a total membership of nearly 500.

The interest shown in the Chaldeans convinces the organizers that there is a decided place in the clayfield for just such an institution and the Supreme officers will hold a special meeting at an early date and map out the work for the year.

Members located in Des Moines, Minneapolis, Cleveland, Columbus, Buffalo and other cities have made application for temples and these will be formed during 1914. President Millar of the Canadian National Clayworkers Association also has invited the Chaldeans to go to Toronto next year and institute a lodge among his members. He and Secretary Walsh, who, with a party of Canadians, made the trip to New Orleans, with the Chaldeans, promise to set apart a special night for the Chaldeans and give them every assistance in establishing their cardinal principles of absolute unity, harmony and fraternity.

Enamel Brick Men Have Stormy Voyage

Four sales-agents of the American Enameled Brick & Tile Co., accompanied by C. A. Gardner, salesmanager, and C. E. Jacquart, Jr., assistant superintendent of the plant at South River, N. J., took the steamer for New Orleans, and ran into a storm en route, which not only delayed the arrival of the excursionists but caused considerable discomfort.

Enamel brick men at sea. From left to right, G. A. Gardner, salesmanager American Enameled Brick & Tile Co.; Edmond F. Grand, of Purcell & Grand, Cincinnati, Ohio; Charles A. Bonner, of Bonner & Marshall Brick Co., Chicago; C. E. Jaquart, Jr., assistant superintendent South River plant, American Enameled Brick & Tile Co.; Harry C. Podolsky, Bonner & Marshall Co., Chicago, Ill., and Walter Purcell, Purcell & Grand, Cincinnati, Ohio.

The party included Walter Purcell and Edmond F. Grand, of Cincinnati, Ohio, Harry C. Podolsky and Charles A. Bonner of Chicago, and the two officials of the American Enameled Brick & Tile Co. named.

The trip followed a convention of sales-representatives of the enameled brick company, which had been held in New York and which was attended by Alfred Tyler, of Baltimore, Md.; J. T. St. Clair, of the Stinson-Reeb Supply Company, of Montreal, Can.; A. S. Reid of A. S. Reid & Co., of Newark, N. J.; R. S. Channel, of Philadelphia, Pa.; H. O. Freeman, of the Pittsburgh (Pa.) Purcell & Grand, of Cincinnati, Ohio; Bonner & Marshall Brick Company, of Chicago, and Carter, Black & Ayres, the New York City representatives.

The high sea caused by a storm that lasted 36 hours brought many "to the rail" on the voyage.

All of the delegates were guests of the American Enameled Brick Company, and had quarters at the McAlpin Hotel, in New York. One day was devoted to a visit to the South River, N. J., plant, and the balance of the time was given to sight-seeing.

Abstracts from Ceramic Society Papers, Read at Wheeling, W. Va.

A Brief Resume of Several Important Papers that Form a Part of the Transactions of the Sixteenth Annual Meeting of the American Ceramic Society.

By Charles S. Kinnison
Technical Editor, Brick and Clay Record

CULLEN W. PARMELEE, B. Sc., Newly Elected President, American Ceramic Society.

THE SIXTEENTH Annual Meeting of the American Ceramic Society, which was held at Wheling, W. Va., Feb. 24-27, was rich in suggestions, thought and result in research work. Abstracts from some of the papers are given here, although it was impossible to secure notes on all discussions, or, indeed, upon any great part of them. It must be borne in mind, too, that many of the papers that appeared on the program were "Read by Title Only"—that is, were simply announced, the author being absent.

These papers will appear in the printed volume of "Transactions," which, if it follow the usual course, will be ready for distribution sometime next December. Other papers, which were read, from which abstracts were made, are not made a part of this article, since they were of so technical a nature, and upon subjects that had no particular and immediate interest for the manufacturer of the rougher clay products.

Following precedent, the papers were divided into eight classes:

I. The Occurence, Mining, Preparation and Testing of Raw Materials; II. Bodies, Glazes and Colors; III. Economic and Educational; IV. Cements, Limes and Mortar Materials; V. Glass and Enameling on Metals; VI. Mechanical and Manufacturing Processes; VII. Burning, Heat Reactions, Fuels, Kilns, Pyrometry; VIII. Testing of Clay Products.

Following the address made by Ellis Lovejoy, E. M., retiring president, a report on which was published in the March 7 issue of "Brick and Clay Record," Cullen W. Parmelee, B. Sc., the president-elect, read "Data on the Effects of Varying Compression Loads Applied to Clay in the Plastic Condition." Investigation was made upon the effect of subjecting clay in a stiff plastic condition to various pressures, ranging from 2,000 to 50,000 lbs. for the purpose of learning something regarding the effect of repressing upon the compactness or density of brick. The results of the experiments indicate that repressing has small effect in so far as increasing density or compactness is concerned. No study was made of the possible effect upon structure, and additional experiments will be made before the above conclusion may be regarded as having general application.

"The Ceramic Aspects of the Abrasive Material Industry," read by Ross C. Purdy, Cr. E., of Worcester, Mass., was illustrated with many interesting lantern slides showing the development of the Norton Company and illustrating the methods of manufacturing alundum, carborundum and abrasives of different sorts. Mr. Purdy, as chief of the research department of the Norton Company, was especially fitted to talk on this subject, and it was a particularly entertaining, as well as instructive, presentation of a subject that has more than passing interest.

"A Note on the Restoration of Plasticity to Pottery Scrap Clay" read by Johannes Minneman, Cr. E., of Derry, Pa., gave the causes of the loss of plasticity in the scrap clay in potteries and described a method of restoring the same, commercially, by the use of certain electrolytes (soluble salts) which coagulate the slip clay.

"A Study of the Atterberg Plasticity Method," by Charles S. Kinnison, Bureau of Standards, Pittsburgh, Pa., and technical editor of the New Methods and Processes Department of "Brick and Clay Record" gave the fact that the Atterberg method, devised by Albert Atterberg, consists in determining the amount of water necessary to bring about flowage of the clay under certain conditions, and also the amount of water which a clay can contain at that consistency where it will first crumble down, when an attempt is made to roll it into threads. The number expressing the difference between the per cents of water is called the "plasticity number" and the greater its value the more plastic is the clay, says Atterberg. Twenty clays were tested by this method and several by methods of our own. Results showed the Atterberg method to be no improvement over our own methods and to be open to some sharp criticisms.

"The Clays of Kansas," by Paul Teetor, of the University of Kansas, Lawrence, Kas., gave a review of the clays of commercial possibility, that were now being worked, as well as those still undeveloped, with the location of the deposits in various parts of Kansas.

"The Compression, Tension and Cross Breaking Strength of Certain Clays in the Dry State, With and Without the Use of Standard Sand," by A. V. Bleininger, B. Sc., and W. L. Howat, Bureau of Standards, Pittsburgh, Pa., drew no conclusions, being merely the results of tests as measured. It has been recommended to make these tests with one part clay

EDWARD ORTON, Jr., E. M.,
Secretary, American Ceramic Society.

to one part standard Ottawa sand. For the clays alone, the cross-breaking test seemed most promising.

"The Viscosity of Porcelain Bodies High in Feldspar," by A. V. Bleininger, B. Sc., and Charles S. Kinnison, Bureau of Standards, Pittsburgh, Pa., gave the result of an investigation dealing with the development of a porcelain body best adapted to American methods of manufacture and use. Viscosity was measured by burning test pieces under tension to kiln temperatures and noting changes in length.

"A Comparison Between English and American Earthenware Glaze Practice," by Ernest Mayer, of Beaver Falls, Pa., gave glaze formulae of both types and these were discussed at length.

"Colored Porcelain Glazes," by E. T. Montgomery, E. M. (in Cer.), and I. A. Kruson, of Alfred, N. Y., dealt with the colors produced at Cone 10 in a porcelain glaze by the ordinary coloring oxides, and the amount of the same, necessary to produce satisfactory tones. Coloring power of the nobler metals was also studied, the ware being illustrated with colored glaze samples and with lantern slides.

"The Influences of the Chlorides of Calcium and Iron When Precipitated Into a Porcelain Body," by Barney S. Radcliffe, A. B., of Urbana, Ill., gave the results of an investigation on the production of a red floor tile body, using varying amounts of $Ca\ Cl_2$ and $Fe\ Cl_2$ up to amounts equivalent to 10% $Fe_2\ O_3$ and $Ca\ O$. Body used was dry pressed, and the burning temperatures cones 5-7-9. Excellent vitrified gray bodies obtained with 1% Fe_2O_3 both without and with $Ca\ O$ up to 9%. Best red color was obtained with 4-5% Fe_2O_3. Bodies could be practically vitrified without destroying color.

"The Preparation of Underglaze Colors by the Solution Method," by R. M. Howe, of Alfred, N. Y. In this paper, colors were produced by soluble salts instead of with metallic oxides.

"Some Cobalt-Uranium Colors," by Barney S. Radcliffe, A. B., of Urbana, Ill. This paper gave: first, a study of colored fritted glazes, using $Co_2\ O_3$ and $Na_2\ U_2\ O_7\ 6H_2\ O$ as colorants; and second, the use of uranium and cobalt nitrate in bright and matt glazes. The best colors obtained with the nitrates, with 1 part cobalt nitrate to 3.5-5.0 uranium nitrate.

"A Rational Piecework System for Placing Kilns," by Johannes Minneman, Cr. E., of Derry, Pa., described a piecework method of setting the kilns at a high voltage insulator factory. In this method, which has been in successful use for several years, the setters paid on the basis of cubical contents of the pieces set. This method resulted in a marked increase in the capacity of the kilns.

"Scientific Management and the Bonus System as Applied to Pottery Manufacture," by C J. Kirk, of New Castle, Pa. This system is based on a scale of "merits and de-merits." The workman is given a certain number of de-merits for certain faults in the article he is making. A scale of rating of the men on this basis is kept posted and the "high man" at the end of the month gets a $5 bonus, second high man, $3 and third high man $2. This scheme resulted in decidedly improved ware.

"Recent Developments and Improvements at the New York State School of Clay Working and Ceramics," by E. T. Montgomery, E. M. (in Cer.), Alfred, N. Y. This paper was illustrated with lantern slides showing views of buildings, laboratories, etc.

"Note for Discussion; some Corrections in Our Transactions," by R. T. Stull, E. M. (in Cer.), of Urbana, Ill. Attention is called to ludicrous and serious mistakes occurring in transactions of the society and recommends that the authors of the papers have an opportunity to proof read the manuscripts, and linotype transcriptions, before same are made up in page form.

"Some Properties of White Portland Cement Mortar," by P. H. Bates, B. Sc., Bureau of Standards, Pittsburgh, Pa. This paper described the results of a comprehensive investigation.

"The Hydration of Portland Cement," by A. A. Klein and A. J. Phillips, of the Bureau of Standards, Pittsburgh, Pa. An excellent and thorough investigation, illustrated with lantern slides of photo-micrographs showing the formation of various compounds.

"A Method of Indicating the Rate of Set of Lime Mortars," by W. E. Emley, B. S. Ch. E., Bureau of Standards, Pittsburgh, Pa., described a method for determining the distribution of carbon dioxide throughout a lime mortar during the progress of hardening. For this purpose, an organic dye, Wool Blue-R, was used, with which the lime is colored. The lime which has not hardened destroys the color while in the lime which has set, the color is restored by the CO_2.

If a sample of mortar be treated with this dye and then examined after some time, that part of it which is in its original condition will be colorless, while the part attached by the carbon dioxide will be blue.

"The Effect of Consistency and Amount of Sand on the Properties of Lime Mortar" was read by the same authority. It described an experience wherein sand, lime and water were mixed in proportions varying by intervals of 5 per cent. The consistency, shrinkage, decrease of weight and crushing strength of the resultant mortars were measured. Any variation in the composition of a mortar has decided influence upon its properties. Consistency is an important factor.

"The Effects of Some Electrolytes on Clays," by Robert Back, United States Bureau of Mines, Washington, D. C., was a very able, technical paper concerning the effects of electrolytes upon the physical behavior of the clay slips. A method was also given for the measurement of the plasticity.

"A laboratory Oven, Provided with Recording Attachments for the Study of the Drying of Clays," by A. V. Bleininger, B. Sc., Bureau of Standards, Pittsburgh, Pa., showed an oven consisting of three units—one a calcium chloride chamber for drying the air used; the second, a compartment where this dry air is heated and, third, the drying oven proper, in which the clay specimens are dried. The specimens are two in number, one for shrinkage observations and the other for determining the rate at which the water is driven off, as shown by the loss in weight of the specimen. Attachments are provided which automatically and graphically record the drying behavior of the clay, as shown by its shrinkage and rate of loss of water. The feature of this drying apparatus is, of course, that it is absolutely under control, the air being under known conditions of volume, pressure and humidity, and the temperature of drying under careful control by the thermo-stats. Much valuable information regarding drying should be obtained with this apparatus and the results of the work are being eagerly awaited.

"The Preparation of Feldspar for the Ceramic Industry," by Arthur S. Watts, Professor of Ceramic Engineering at the Ohio University, gave the effect of length of grinding period on feldspars and stated that, in general, it was found that the reduction in size of grain increases in equal ratio or approximately so for all the different sizes of grain. The classification was made by means of sieves of standard mesh up to 330 mesh per lineal inch. The finer sizes were separated by floating. The result of the investigation indicates that up to 12-hour grinding the material is improved for ceramic use but the 12-hour grinding does not contain greatly increased fine material over that obtained by the 10-hour grinding. Further investigations are being made to ascertain whether this statement would hold good for other forms of feldspar than the one investigated.

"A Rope Haulage System, Using Electric Power, with Gravity on an Incline," Walter A. Hull, E. M. (in Cer.), of Lookout Mountain, Tenn., was a description of a possible application of a haulage system used on the inclined railway at Lookout Mountain, to the ceramic industries. Safety of operation was its most salient feature.

"Note on the Reduction Temperature of Ferric Oxide in Clay Mixtures of Varying Acidity and Under Oxidizing Conditions," by Charles S. Kinnison, Bureau of Standards, Pittsburgh, Pa., showed that four different clay mixtures were used to which 5% ferric hydrate were added, three of the mixtures being of varying silica content, while the fourth was a pottery body. Tiny specimens of each were heated in an electric furnace and the temperature noted at which the reddish colors changed to black, this color phenomenon being characteristic of the formation of ferrous silicate (upon reduction of the iron). Work showed that within limits, the smaller the ratio of the Al_2O_3 to the SiO_2, the lower the temperature of formation of the ferrous silicate. Possible application of results, might be the use of ground calcined clay for the bedding of vitrified china bodies ,in place of the flint, since in this way the coloring effects of the iron is minimized.

ARTHUR V. BLEININGER, B. Sc.,
Bureau of Standards, Pittsburgh, Pa.

"The Effect of the Addition of Lime and Silica to a Shale," by Paul Teetor, of Lawrence, Kan. This was an interesting investigation regarding the effect of additions of lime and silica upon the porosity and rattler losses of burned shale.

"The Viscosity of Some Shales at Kiln Temperatures," by G. H. Brown, Cr. E., Bureau of Standards, Pittsburgh, Pa. This investigation comprised a comparison of the viscosities of seven typical shales. Test pieces similating in shape an elongated form of the briquette used in cement testing, were heated to kiln temperatures while under a tension of 5 lb. per sq. in. and the resultant elongation noted. Illinois shales seem to be more subject to sudden changes in viscosity than the Ohio & Eastern shales. A test of this kind is suggested as being of value in the testing of shales and clay as to their suitability for the manufacture of paving brick.

"The Use of Mixed Potash and Soda Feldspars in Porcelains," by Arthur S. Watts, of Columbus, Ohio, stated that everything points to the fact that increased translucency is not obtained in porcelains high in soda if fired above Cone 8; also that the warpage is not apparently increased by higher soda feldspar content.

"The Flow of Clays under Pressure," by A. V. Bleininger, B. Sc., and D. W. Ross, of the Bureau of Standards, Pittsburgh, Pa., showed the result of studies of clay, from the standpoint of the mechanics of solids and fluids, the object of the work being the theoretical comparison of different stages of clays' consistency, as to whether they approach a liquid state. It was found that the theoretical definition of plasticity was approached with fair closeness by clays in their most plastic condition. The flow of clays showed a wide divergence from the flow of a typical fluid through an orifice and hence the laws which apply to the flow of liquids cannot be used directly in comparisons with plastic clays.

"Further Notes on the Consumption of Power in Stiff-Mud Brick Machinery," by Richard R. Hice, E. M., of Beaver, Pa., contained some observations checking Mr. Hice's previous paper, presented before the American Ceramic Society last year.

"Notes on the Cooling of Vitrified Sewer Pipe," by Samuel Charles Karzen, Cr. E., of Uhrichsville, Ohio, was a description of a simple method for safely cooling vitrified hollow ware. The heat is removed through the crown of the kiln, making the process a so-called updraft method of cooling. A number of observations are also given on safe cooling and a general discussion of conditions which lead to cooling troubles and how the same should be overcome.

"Designs of Seven Test Kilns," by R. T. Stull, E. M. (in Cer.), and R. K. Hursh, of Urbana, Ill., was a description of test kilns used, designed and built by the Ceramic Department of the University of Illinois, illustrated with lantern slides.

"The Veritas Firing Discs," by A. V. Bleininger, B. Sc., and G. H. Brown, Cr. E., Bureau of Standards, Pittsburgh, Pa., gave a standardization of these well known discs, both for high and low temperatures. Results shown graphically.

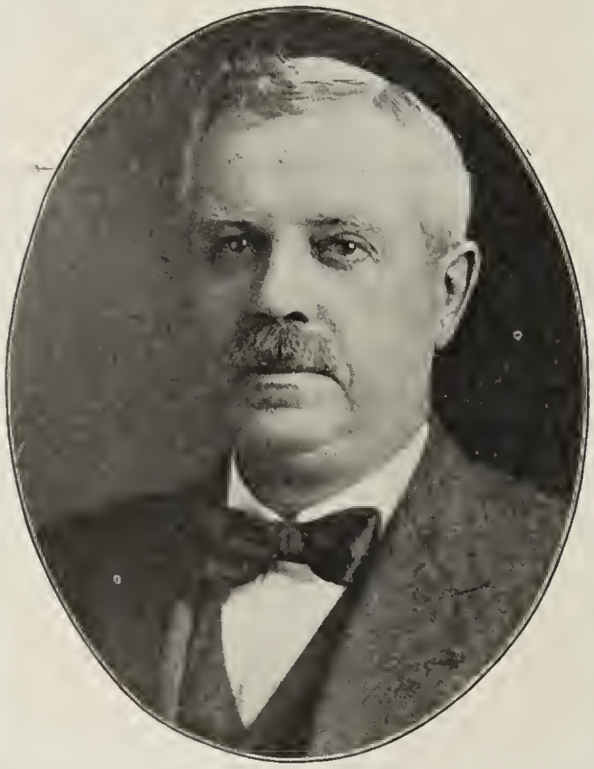
"Question—Can Producer Gas Be Satisfactorily Applied to Periodic Kilns?" Raised by I. M. Justice, of Dayton, Ohio.

"The Relative Thermal Conductivity of Silica and Clay Refractories," by G. H. Brown, Cr. E., Bureau of Standards, Pittsburgh, Pa. In this paper silica brick was shown to be a better conductor than clay brick, yet in this study it was impossible to make a specific statement as to the conductivity of the two classes of materials. (The temperature of burning is also a factor, silica brick burned at low temperatures being poorer conductors than clay brick burned at same temperature.)

"The Legal Definition of Vitrification in Clay Products," by Edward Orton, Jr., E. M., of Columbus, Ohio, claimed that a definition must be established and made known before it can be considered as legal. Same definition would not apply to all articles. Where there are no specifications, the following definition is suggested: "A vitrified clay product is one of such density as will absorb less than 3% water when tested as given. Visible appearance of glassiness not necessary, nor hardness nor color, nor a certain specific gravity. The conditions of absorptions to be specified, as follows: 1. Number of pieces; 2. Sizes of pieces; 3. Preparation of pieces; 4. Period of soaking; 5. Shall the water be at boiling temperature and shall a vacuum be maintained? 6. Degree of refinement of weighing—The above definition is to apply only to the commercial vitrified clay products.

"Reports On the Paving Brick Obtained From the Streets of Various Cities," by G. H. Brown, Cr. E., Bureau of Standards, Pittsburgh, Pa., gave the results of an investigation to determine whether a brick showing a good rattler test stands up well in actual use. Method of use was to select paving brick which had been in service in streets for a number of years (5 to 20) and subject them to the rattler test. Brick having rattler losses of 22% and less have given comparatively excellent service under several types of construction. Brick showing rattler losses from 23 to 27% appear to have given both excellent and indifferent service, the degree of excellence being governed by the nature of construction. Brick showing rattler losses of 27% or greater have failed in every case apparently, regardless of construction. Proper construction is next in importance to quality.

RAY THOS. STULL, E. M. (in Cer.),
University of Illinois, Urbana, Ill.



ELLIS LOVEJOY, E. M.,
Retiring President, American Ceramic Society.

ARTHUR S. WATTS,
Ohio State University, Columbus, Ohio.

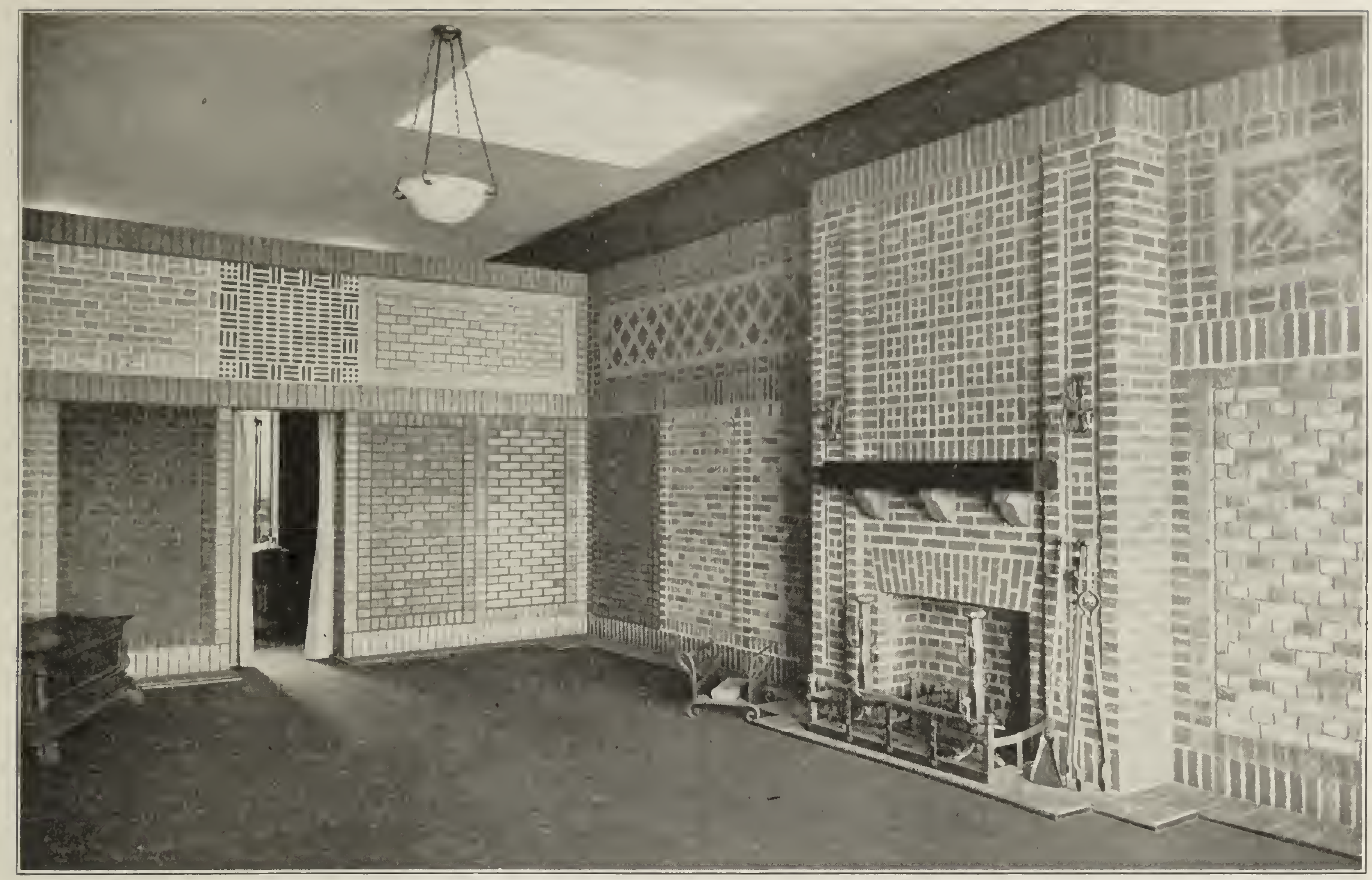


Exhibit Room for Face-Brick, Recently Opened by the S. S. Kimbell Brick Company, at 708 South Michigan Boulevard, Chicago.

Face-Brick Exhibit Rooms

Show Brickmaking and Bricklaying Progress

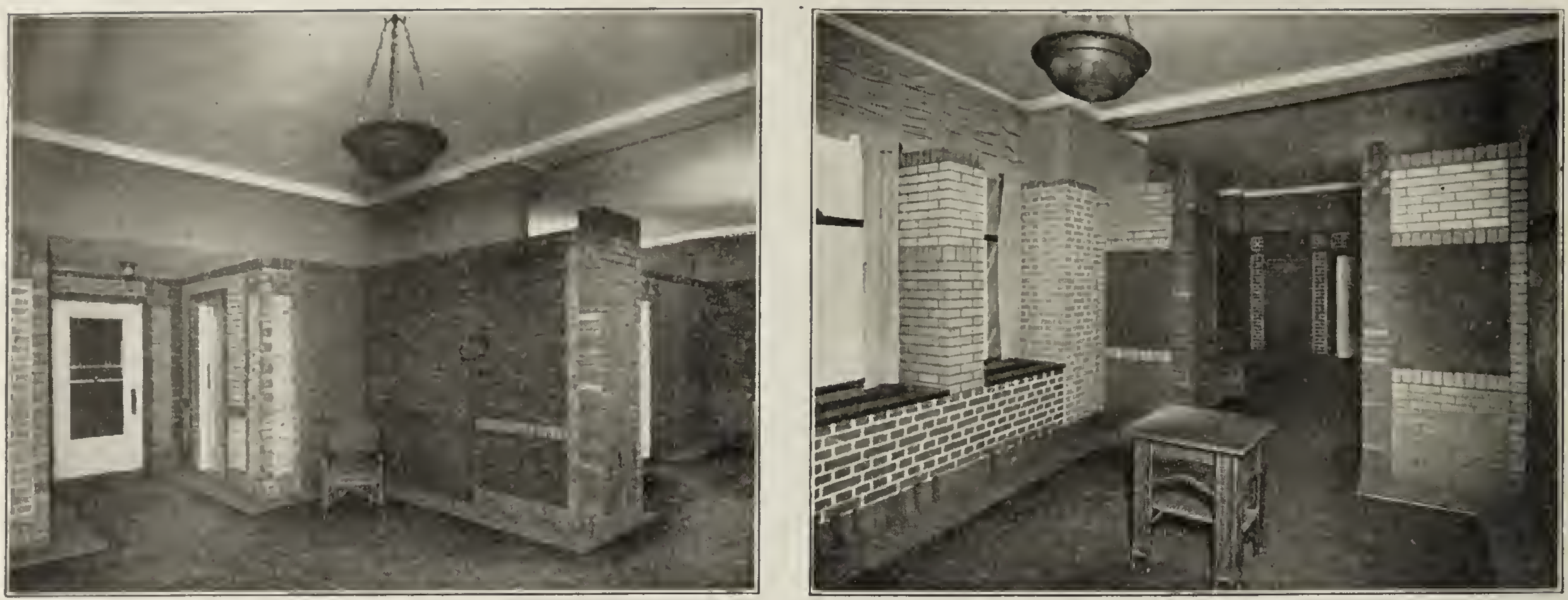
FACE-BRICK has been undergoing a process of evolution. No other material that enters into the construction of buildings has had so many and so marked changes, not only in the color and texture of the material itself, but in the method of its employment. With the early acceptance of the "life in brickwork" gospel came a new understanding of the beauty of a material which, while enjoying an enviable reputation for utility, ease of handling and low cost, had never been looked upon as possessing any particular artistic merit.

With this new thought came the necessity for a more complete exposition of the artistic side of face-brick. A nation that had, for several generations, insisted upon uniformity of color and a fineness of joint that frequently made brickwork an imitation of stone, demanded something more than a description of the textile effect of good brickwork. Single samples, laid one on the other, without the blending effect of a harmonizing joint, showed contrasts that were, seemingly, violent. The importance of the mortar joint was, as yet, an unknown quantity.

L. D. BINYON,
Pres. S. S. Kimbell Brick Co.

Fashions in face-brick began to change. The designers of public buildings and the builders of homes, while willing to adopt the new thought and be among the leaders in a better brick architecture, were loath to go sufficiently far to secure the effects they desired. Their timidity was justified by the thought that the outside of a building could not be altered or discarded altogether, if the choice of color-variation proved disappointing.

Manufacturers of face-brick and those who had made its sale their lifework saw that a practical demonstration of the new art of making and using brick was necessary. This demonstration must needs be honest. To show exactly how a certain brick would look in the wall of a building meant laying that brick in mortar, and laying enough of one kind of brick to give a convincing impression —"an idea" was not sufficient. From this need grew the kind of face-brick



Reception Room, Corridor and One of the Exhibit Rooms inthe S. S. Kimbell Brick Company's Offices in the Chamber of Commerce Building.

exhibits are are now being maintained by the S. S. Kimbell Brick Company.

Chicago is a city of burned clay. In it and in the territory that looks to Chicago for its architecture, more face-brick are used in the course of a single year, than in any other city in the world. It is a small wonder, then, that in the metropolis of the middle west, two of the finest display rooms for face-brick have been installed, one in the famous "Loop district" and the other on Michigan Boulevard—the finest business thoroughfare in the country.

With one possible exception, these display rooms surpass anything of the kind in the United States. In the variety of face-brick shown, they are far ahead of any other exhibit in the country. In them, the best lines of face-brick made in America (and therefore in the world) are shown, laid in bonds and patterns that are the last word in brick design, and with mortar joints that display a thorough knowledge of color, texture and scale.

Various elements enter into the suitability of different kinds of face-brick to different types of architecture. A low-priced "paver" may be better suited to one house than a high-priced pressed brick. Harmony is the highest attribute of art, and brickwork is an art of some magnitude. The same thought attends the choice of a finely finished brick; a comparatively slight difference in cost, between it and one of less suitable color and finish, is well assumed, if the saving of that slight difference carries with it an inharmonious effect to that part of a building which is seen by every passer-by.

And it must be borne in mind that various elements enter into the selling price. The cost of transportation is out of all proportion to manufacturing cost, and the mere fact that a brick is high in price does not establish, necessarily, the fact that it is "better"—that is better suited for the purpose—or more artistic, than some other brick that, through being made nearer at home or under a less expensive process, is sold at a lower figure.

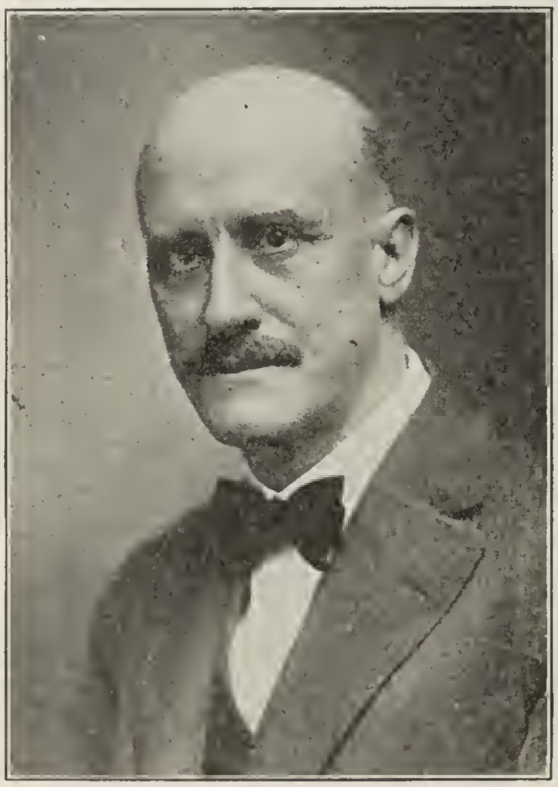
The only test is whether the brick will give the effect the builder is seeking, and whether it is so well made that the effect will be enhanced by age, rather than destroyed by it.

It is with this in mind that the S. S. Kimbell Brick Company has made so comprehensive an exhibit of low, medium and high-priced brick in its two display rooms. And the knowledge that "pavers" have their place, and that smooth finished brick, with sharp edges, permitting of fine joints, are required in much of the important brickwork that is being done, led to their being shown with the same care that marks the display of brick of different textures, colors, variations and shapes.

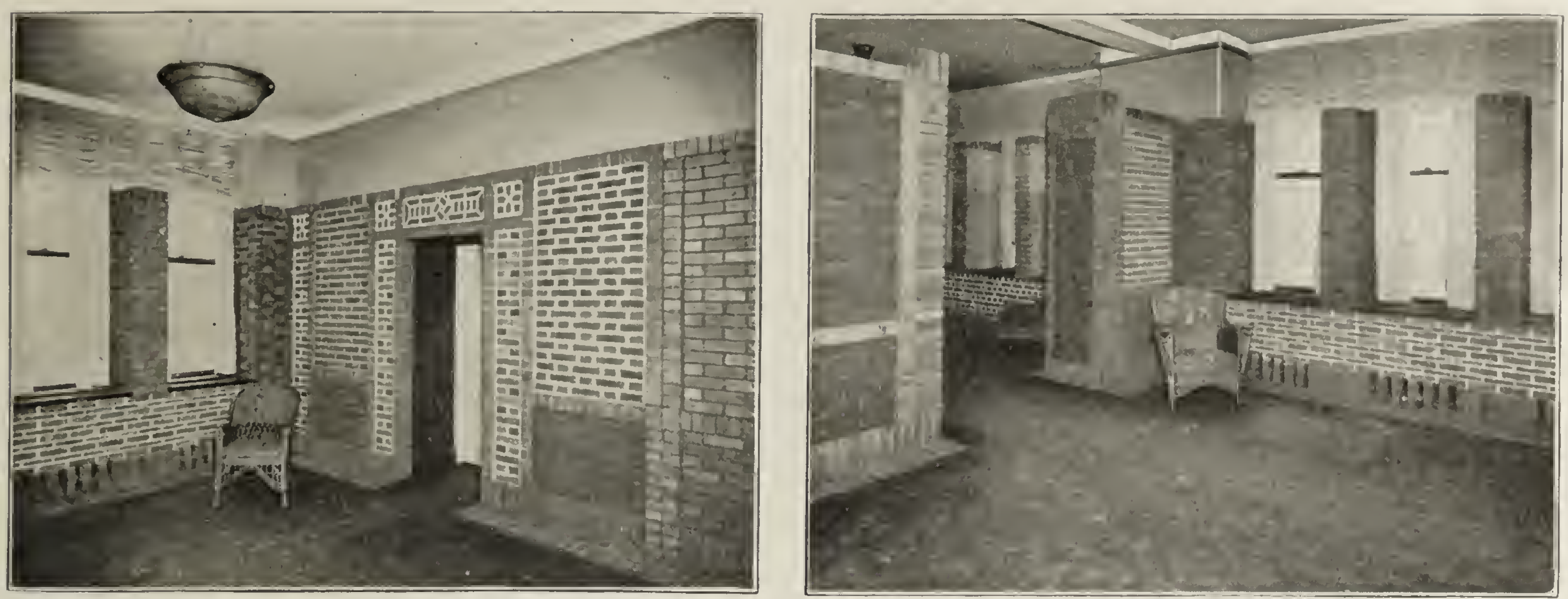
To those who are familiar with advertised, trade-marked names in brick, the fact that "Tapestry," "Oriental," "Mission," "Astrakhan," "Ironclay," "Claycraft," "Bradford," "Contex," "Coshocton" and "Templeton" brick are but a few of those exhibited, will give some idea of the wideness of the range in color, texture and price. To those who are familiar with the brick that are made under these trade names, the surpassing excellence of the line will be apparent.

Not content with making these two exhibits complete, so far as the use of face-brick for exteriors is concerned, a comparatively new use for brick has been given a great deal of prominence. That is the use of brickwork for interior decoration, for fireplaces that are more than mere frames for a hearthstone or a mantel-shelf for the display of bric-a-brac. The advent of diversified color and intricate patterns in brickwork has opened new architectural possibilities and brought a new use for the most imperishable material known for constructional purposes.

Doing away with the many processes of adding color to interior walls, such as papering, kalsomining and painting, and substituting a material that in itself forms a part of the construction, pattern brickwork adds color, texture and design impossible of attainment with any other known material. In the ease with which the units are assembled and the patterns woven in solid brick and time-defying mortar joints, lies a wide field for the designer and the artistic adaptation of a world-old material to a modern use. Corridors, entresols, special rooms devoted to special purposes, rathskellers,—in fact, every wall surface



HERMAN L. MATZ,
Vice-Pres. S. S. Kimbell Brick Co.



In These Exhibit Rooms, Low-, Medium- and High-priced Face-Brick Are Shown, Lain in the Mortar Joint That Is Best Suited to Their Size, Texture and Color.

in interior work that lends itself to marked ornamentation, is susceptible to the new treatment in face-brick, which has been aptly called "jugendstyle."

A fireplace becomes as ornamental a feature as an Oriental rug, and as captivating to the eye, in its intricate coloring, its soft blending of subdued shadings and its well conceived pattern. A wall space, which otherwise would be plastered, stenciled and painted, is made of built-in material that has the inestimable virtue of permanency, combined with a craftmanship that cannot be secured in any other way.

Nor are the possibilities of tiling neglected. In many places, and particularly where floors are to remain uncovered, no material blends so well with interior brickwork, as tile of the same, or harmonizing color. Made of the same clay, and burned in the same kilns with the brick, it fits to perfection, into the decorative schemes that are suggested and demonstrated in both exhibit rooms.

The business offices and "Loop" salesroom of the S. S. Kimbell Brick Company are located on the 3rd floor of the Chamber of Commerce Building, at Washington and La Salle Streets. This location is convenient to the City Hall, where plans are filed and building permits taken out. In Chicago's great financial district, it is easy of access to prospective builders who desire to choose wisely, having seen just the brick they want, laid up in the way they find best suits the style of architecture they have in mind. Here three large rooms are devoted to the display of face-brick, solid walls of real brick, laid in real mortar showing the possibilities of brickwork—work done by ordinary bricklayers following well considered designs.

A new departure came in the installation of a second salesroom at 738 South Michigan Boulevard, in the block south of the Blackstone Hotel. The transformation of this part of Chicago into a fashionable hotel and shopping center has been as marked as the ingress of trade on Fifth Avenue, in New York. The broad boulevard has invited automobile traffic and some of Chicago's most exclusive shops are located in the buildings that face the lake. In many of the tall buildings that mark Chicago's lakeside "skyline" are the offices of architects whose reputations are nation-wide.

To serve the convenience of these designers and to offer the highest service to home builders whose pleasure and business is away from the busier "Loop" district, the S. S. Kimbell Brick Company has installed this second exhibit room, and throws its doors open to those interested in a thoroughly artistic exposition of the possibilities of brick work, assuring them a warm welcome and a sympathetic understanding of the problem that confronts the builder who wishes to give a touch of the beautiful to his walls without sacrificing any of the utilitarian attributes of burned clay—the material that has defied the hand of Time, ever since time has been recorded.

A prominent architect once said that, with the immense number of materials which enter into building construction, it was impossible for the designers of homes and other structures to have more than a basic knowledge of any one material, and that it was the province of the manufacturer and dealer in commodities that were undergoing changes, to keep the architectural profession posted. Face-brick is one of the materials which is in process of development, and its progress is very difficult to describe, either by spoken word, printed page or colored picture. The subdued hues of brickwork do not lend themselves to correct duplication in color printing, which, while it diminishes, intensifies. It is difficult to "give the effect of a finished wall" without using so many brick that the bulk and weight militate against ease in transportation.

Hence, the placing of exhibit rooms at convenient points is justified by the material that is being shown. These exhibits are almost at your door—do you think it is wise to choose your face-brick without seeing them? Is it wise to choose the material that is so prominent in your building, without taking advantage of this opportunity to choose wisely and well?

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Convention Considers Big Publicity Scheme Step

Continued from Page 693.

Mr. Ray and Mr. Kreisinger, of the United States Bureau of Mines, have submitted, in Bulletin 21, an excellent treatise on the significance of drafts in steam boiler practice. The extremely clear manner in which this matter is treated allows its application to kiln practice, and is submitted herewith.

In a kiln furnace, the hot fuel is ignited and made to burn by the passage of a current of air through it. This current of air supplies the oxygen necessary to effect combustion, and that portion of the air which does not chemically unite with the fuel, carries away with it the gaseous products of combustion. In order that the ware in the kiln may absorb the heat generated by combustion, the combustion gases which contain this generated heat are caused to flow with the air from the fuel bed through the ware, and thus impart heat to the ware by coming into contact with its surfaces.

It is plainly evident that motion of the air and of the gaseous products of combustion is very essential to the operation of a kiln furnace. It is also plainly evident and very important that, in order to effect fuel economy, this motion of the air and the gaseous products of combustion should be under complete control at all times during the process of burning. The motion of the air and the gaseous products of combustion is effected by a preponderance of pressure at some specific point of travel, as compared with some other specific point toward which it is desired the gases should move. The greater the difference in pressure between these points of travel, the higher will be the velocity of the flow.

The word "draft" has been used to define the motion of gases, and has also been used to define the difference in pressure which produces the motion. Inasmuch as gas is a discontinuous body, it will be plainly evident there can be no such motive force as "draft."

There are three possible ways of producing such differences in pressure as will cause gases to flow through the fuel bed and through the kiln.

1. By chimneys.
2. By induction fans between kiln and chimney.
3. By pressure fans supplying air under the fuel bed.

The second method is seldom if ever used. The first is the more common method.

Gases expand when heated, hence a unit volume of hot air, plus combustion gases, weighs less than an equivalent volume of atmospheric air. The hot gases in a chimney flue, being more tenuous, exert less pressure than the air at atmospheric temperature. This may be graphically demonstrated as follows:

Let w equal weight of a volume of hot gases.

Let W equal weight of an equivalent volume of atmospheric air.

Let d equal difference in pressure between ashpit and chimney.

Let A equal weight of an imaginary column of air above chimney.

Then, $d=W-w$

Also, $d=(A+W)-(A+W)$

As a result of this difference in pressure, the outside air pushes through the fuel bed, where a certain portion is modified by chemical combination with the fuel, and both this and the unused air are pushed from the fuel bed through the kiln into the chimney, and through it into the high open atmosphere, where the flue gases rapidly diffuse. The hotter the gases in the chimney, the more tenuous do they become and the greater is the difference in gas pressure as between the front of the firebox and the base of the chimney. It is also plainly evident that the higher the chimney, the greater is the difference in pressure. "With gases there is no pulling, only pushing." Gases travel from places of higher pressure to places of lower pressure, and the motion of travel results from the expansion of the gases when heated.

As previously stated, the term "draft" is indefinite, being applied sometimes to the motion of gases and sometimes to the cause of the motion—that is, to the pressure difference.

A large pressure drop through the fuel bed (or a high draft over the fire) does not necessarily mean that the rate of combustion is high—it is likely to mean the opposite.

High pressure drop through the fuel bed always means high resistance in the fuel bed to the flow of gas.

The pressure drop through the fuel bed is significant only when considered in connection with the total pressure drop.

The most successful enterprises of the present day are those which are scientifically designed and operated. The clay industry has shown remarkable scientific development with respect to machinery, drying, the arrangement and location of different units; but the most vital and variable part of the entire plant is the kiln itself, and its design and construction is too often by rule of thumb. Would it not be apropos to suggest that the kiln, above all things else, should receive scientific attention? (Applause.)

E. E. R. Tratman, resident editor of the "Engineering News," Chicago, read a paper on "The application of Brick in Engineering Work." He said in part:

The use of brick in engineering work is extensive and varied. In recent years its use has become considerably restricted in some lines of construction, while some new lines have become important.

The sewer systems of cities afford one of the largest fields for the use of brick. Much of the work is of an ordinary character, but there are many cases in which size, form, special design, methods of construction, or difficulties encountered, make the work of interest to the engineer. At Detroit, most of the sewers are of brick. The largest brick sewer planned and built during 1913 was the Morrell Street sewer, about five miles long, from 8 to 9 feet diameter, and costing $685,000. A similar trunk sewer now under construction is the Mt. Elliott Avenue sewer, a considerable portion of which is 9 feet diameter, built in tunnel.

At Cincinnati there are about 80 miles of brick trunk sewers. Brick is used for all sewers over 2 ft. diameter, and the largest brick sewer is about 20 ft. diameter. The larger sizes (and the smaller ones where necessary) are backed up with haunch walls of rubble masonry or concrete. Vitrified-brick lining is used in the inverts of concrete sewers (up to the springing line) but only where the velocity of flow is excessive; that is, over 8 ft. per sec. In some cities, however, all concrete sewers are lined with brick (at least in the invert), while others do not use brick in any of their concrete sewers.

At St. Louis, brick is used for all sewers over 27 in. diameter and up to 9 ft. diameter, and is used for still larger sizes in special cases. During 1913 there was under construction the Rocky Branch joint district sewer, 10 and 14 ft. diameter, brick being used because the congested condition of the streets made the establishment of a concrete plant a difficult matter. There was also the Glaise Creek joint district sewer, a trunk sewer of 10 ft. down to 8 ft. diameter, brick being used entirely because the amount over 9 ft. diameter was too small to warrant installing a concrete plant. Vitrified-brick lining is used in the invert of concrete sewers.

At Philadelphia, brick is used in egg-shaped sewers 2 ft. 3 in. by 1 ft. 6 in. to 4 ft. 6 in. by 3 ft. and in circular sewers from 2 ft. to 20 ft. diameter. Concrete is used only for sewers up to 5 ft. diameter except in special cases, and has brick lining in the invert only.

In Chicago there are about 1,958 miles of sewers, of which all but 14½ miles are of brick, with a diameter of 3 ft. to 10½ ft. The largest concrete sewer is of elliptical section 14 ft. high and 12 ft. wide. No brick lining is used in any of the concrete sewers in Chicago or Kansas City.

At Cleveland, all but about 6 per cent of the large sewers are of brick, the smallest size being egg-shaped in section, 24 in. wide and 27 in. high, and the largest being 16 ft. diameter. Concrete is used to a considerable extent for the foundations of sewers, and in several cases there has been used a combination of brick lining for the entire inner ring, backed with concrete.

At Minneapolis, brick is used only for the manholes and catchbasins. At Kansas City, no brick sewers have been built for three years. For sewers over 30 in. diameter, bids are asked on brick, reinforced monolithic concrete and reinforced-concrete pipe. The awards are made to the lowest price material, which is generally monolithic concrete, but in some cases concrete pipe. The concrete sewers are not lined with brick. A special development in the use of hollow segmental blocks, and, owing to their size and light weight, the work can be done much more rapidly than with brick. These blocks have been used in sewers from 27 in. to 6 ft. diameter, and are made for sizes up to 9 ft. diameter.

At Chicago, brick has been used in certain parts of the Chicago Ave. and Wilson Ave. tunnels of the waterworks system; in all about one-half mile of tunnel, 8 ft. diameter. The water-intake tunnels at Cleveland have a brick lining, and brick is to be used also in the new intake tunnel at Milwaukee. At Cleveland, a long intercepting sewer has been built parallel to the short line, and nearly five miles of this are in tunnel with a four-ring brick lining, having an interior diameter of 13½ ft. and 12¼ ft. This was driven in stiff clay soil, by means of a steel shield. The bricks were laid in portland-cement mortar, and though the jacks pressed against the end of the completed lining, the only damage done was at the points of application of the jacks, and this small amount of masonry was repaired each day as the shield advanced.*

The lining of railway tunnels was at one time a field for brick, but this is now much less extensive. An example of modern work is the double-track Elm Tunnel on the Frankfort & Berlin Ry. in Germany.† This is 2¼ miles long, and was built under considerable difficulties, owing to the pressure or "squeeze" of the ground. The celebrated Thames tunnel was built of brick, as were the large double-track arched tunnels of the original underground railways at London. These were near the surface, but the present "tube" lines are single-track deep-level tubes with cast-iron lining. With the advent of the modern subway and underground railway there has been opened a rather large field for the architectural or decorative use of brick in the facing of the tunnel lining at the stations, and, though this is mainly for glazed and ornamental brick, it indicates how new fields open, although old fields for the use of brick may become closed or restricted.

Most important brick chimneys now built are of special radial hollow brick. The monster brick chimney for the Boston & Montana Copper Co., at Great Falls, Mont., is 506 ft. high and 50 ft. diameter at the top, the proportions being very unusual. It is built on the Custodis system, and is said to be both the tallest and largest chimney in the world. Next to it comes a Heinecke brick chimney 460 ft. high, but with a diameter of only 8 ft. at the top. This chimney carries the acid gases from smelters and is reported to show no deterioration after twenty years' service.

Another exceptional brick chimney, which is large in diameter as well as in height, is that of the St. Joseph Lead Co., at Herculaneum, Mo. This is 350 ft. high and 20 ft. diameter at the top. It has an octagonal base 40 ft. high and a circular shaft 310 ft. high. The base contains two openings and is built of vitrified paving brick, laid in English bond. The shaft is built of the Heine perforated interlocking radial brick, and the walls are laid up with alternate header and stretcher courses. The chimney is reinforced by steel bands 4x½ in., embedded in the brickwork, and spaced about 20 ft. apart for the entire

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*"Engineering News," March 28, 1912.

†"Engineering News," Dec. 11, 1913.

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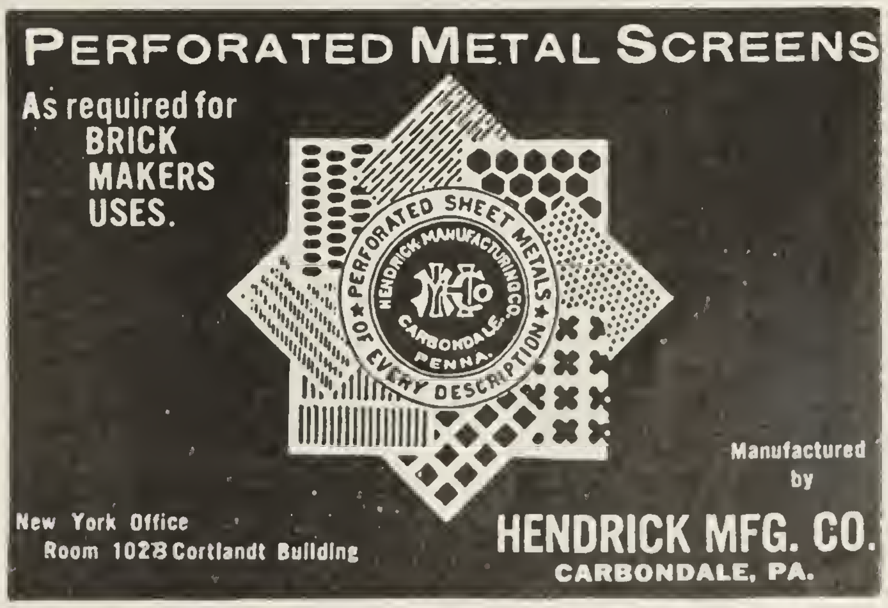
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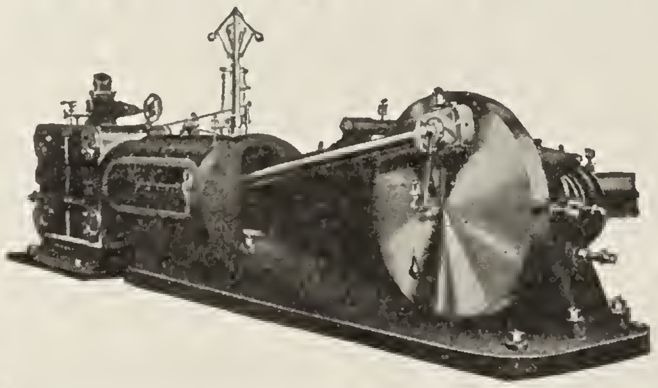

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height. Only the lower part of the interior is protected by a lining (40 ft. high), owing to the relatively low temperatures of the entering gases. Both the paving brick and the radial brick were hard-burned shale brick, having a compressive strength of over 5,000 lbs. per sq. in., and with a very low absorption. They were tested for their acid-resisting qualities by immersion in 25 per cent sulphuric acid solution for 48 hours and afterward by boiling this solution continuously for 30 minutes without removing the sample from the solution. No effects of the acid on the brick were noted.

The chimney was built to carry off the products of combustion and the fumes of a lead-smelter plant. The gases have a temperature of about 200 degrees F. and contain a high percentage of sulphur, making it necessary to build the chimney of acid-proof materials. The bricks are laid in lime-cement mortar, on account of its strength, but as this mortar is decomposed in time under the influence of the acid in the gases, all the mortar joints liable to be attacked by the contact of the gases were made acid-proof. The interior joints for the entire height of the chimney and the exterior joints for 100 ft. down from the top were raked out to a depth of 1½ in. and pointed up with a mortar made of raw benezet. The entire lining was laid with this mortar. The material is a very high grade of fireclay and is acid-proof; it contains about 36 per cent alumina and 49 per cent silica, with only a trace of lime, magnesia and iron oxide. The top of the chimney is covered with a heavy lead cap, extending 12 in. on the inside and outside, and for 100 ft. from the top the iron ladder rungs are covered with ⅛ in. of lead. Quite recently a brick chimney has been built at a blast-furnace plant, serving the hot-blast stoves, which is said to be the first used for this particular purpose. At industrial plants there has been a tendency to use steel chimneys serving one or two boilers each, due to a certain prejudice against a single large central brick stack, but there is a much greater loss of heat through the steel stack, due to radiation and convection, unless there is the additional expense of a brick lining.

The use of brick for paving is a matter of great engineering importance, and in the past 15 or 20 years the manufacture of paving brick has developed into a special industry. Engineering experimental and research or laboratory work has assisted largely in this development, in various ways: 1, the investigation of clays and their properties; 2, the manufacture of the brick, so as to secure a tough, hard and uniform product; 3, the testing of the finished product; and 4, the proper methods of constructing the pavement. For many years brick paving was confined mainly to the streets of towns and cities, but it is now being applied extensively to the paving of country highways.

At one time brick was extensively used for bridges and large arches, but this use has become practically obsolete in this country, and is on the decline in other countries. However, in some arch bridges of concrete construction brick is used as a facing, in order to produce an effective appearance and to form a durable surface finish. This has been done more extensively abroad, but one example in this country is the Sixth Ave. bridge in Des Moines, Iowa, which has a series of arches, with red-brick facing on the arches and piers.

Another use of brick which is more common abroad than in this country is the facing of the walls of docks and piers. Concrete forms the mass of the wall, but this material is often liable to disintegration, particularly at the water line. It is also difficult to repair when worn or when the surface is broken by heavy blows or chafing. The brick used for this facing, in foreign work, are usually of a special character, much larger than ordinary brick, extremely hard, and frequently dark blue in color. At points on the Nova Scotia coast walls have been faced with vitrified brick.

Anything relating to cost interests the clayworker, and the paper on this subject by Warren W. Ittner, was no exception. He said:

It is a fact beyond dispute that a business, any business, great or small, must be run with due regard to operating costs if it is to secure its full measure of success.

It is not with the various systems of cost accounting as such that this paper has to deal. We will leave that branch of the subject, with its dry, though however important, statistics, to those more competent. What the writer wishes to bring out more paricularly has to do with the things we do or leave undone in the manufacture of brick and burned clay material that cost us money, lose us trade and are detrimental to the business as a whole.

Are we working for the good of the line? If we save a few pennies by some change in manufacture that reduces quality, if we cut a price already low just to "get the job," are we counting the costs?

We are coming more and more to admit that deviation from the right and proper way of doing anything is sure, sooner or later, to bring its just retribution. And that is true. We do things that are legally wrong and other things we do wrong legally. But no matter what the reason may be for doing them wrong, the effect is sure to follow and we will pay just as certainly as that if we do them right we will reap.

If we save the labor of a few men mixing clay and let it go to the machines unmixed, we know what the result is going to be. There is no use trying to deceive ourselves. We have tried it before and know; but to save a few pennies in the cost, we try it again. The result is that by this saving the only way that we figure it is going to help is that we can better meet competition, and we cut the price a little more and get the job.

What then? The brick are not up to quality, not as good as this customer got from you before. There is a kick, a claim, you adjust it and there you are. You have had to give up what you saved in your cost of manufacture, you have lowered your selling price, and you have dissatisfied a customer. Though your plant be run under the best of cost accounting systems, "did you count the cost?"

On every brick plant I have ever seen I could detect mistakes that were being made wilfully or through ignorance of the exact causes that produced certain unfortunate effects. I do not claim the self-assurance and knowledge that could lay its finger on the exact causes for the latter, but in many cases they could be easily traced. In a few cases the brickmaker was deliberately slighting some process in order to cut his costs. In most cases, however, the brickmaker had a problem that he did not understand or that was difficult to control. It is all right to watch the costs, to keep them from climbing out of all proportion or to reduce them in a legitimate manner. However, the point I wish to bring out here is that we will save and scrimp and cut the cost even at the expense of qualtiy, and for what purpose? Simply that we are thus enabled to cut the price a little more, undersell the other fellow and "get the job." Where are we going to stop? Are we counting the cost?

I have often read descriptions of the way in which paving brick are made, as follows: "From the Booster Edition of The Punkville Journal: The manufacture of paving block as carried on at the large plant of the Punkville Brick Company is really a very simple proposition, even though at first blush it might appear to be very intricate.

"To make a paving block, in the first place you purchase a few acres of the excellent shale that surrounds and underlies our beautiful little city. The stripping must be taken off, when you can dig the shale in any one of a number of approved ways. There are several thin strata of the shale, only a few inches in thickness, that it seems are objectionable and must be left out. The shale is then ground fine, pugged to proper consistency, fed into the machine, which sends it out in an even flowing bar of clay. After passing the automatic cutter, you hack the brick nicely on cars, where they are transferred to the dryer, where all moisture is taken out of them. After this all that remains is to run them into the kiln and burn them to vitrification."

Dead easy. And yet what paving brickmaker, that has selected his plant site with a view to quality of shale, shipping facilities, market and all the other conditions that make for success or failure; that has followed the forming of his crude material into a first-class paver, through years of many mistakes, expensive experiment and their attendant heartaches; that knows what knowledge it requires and what strict attention to the minutest of detail; what paving brickmaker, I wonder, really knows whether to laugh at the foregoing description as a huge joke or to blast it as a sacrilege?

He knows how to make good pavers; knows that only so much of the over-burden should be left to be mixed with the shale, that certain strata must be eliminated, always an expensive proposition; that all should be properly mixed and ground to certain fineness; that the brick must be dried in a certain way and in so many hours, and that they can be heated up fast in the burning, but that vitrification must take place slowly. He knows all this and, most important of all, he knows that pavers, made in such excellence, cost him a certain price, and then on his way home from landing a big order that he has had to take cheap he begins to figure where he can cut the cost so as to net a decent margin of profit.

He decides on one or several ways. He will remove less of the overburden, mixing more of it in or by not taking so much trouble to remove the objectionable strata. The capacity of the plant can be speeded up by not grinding so fine, the drying can be crowded. A little extra care in the burning and no engineer could detect a difference without the usual tests, and these have already been made.

Maybe the program all works out and the manufacturer gets by. The brick are in the streets and he has made his proper margin of profit. And then a few years later he hears of a paving project in this same town, and when he goes in quest of the sale he is dumbfounded to learn that the tax-payers are condemning brick as a paving material and that the concrete men have annexed about everything in sight and are making a clean get-away. The tax-payer is going to take a chance. Concrete is cheaper, better so they say, it can't be any worse, look at Main street, that's brick, and so Mr. Paving Brickmaker sets down and watches the procession go by. Did he count the cost?

With the man who makes building brick it is just the same. There is no need to repeat the story. The same difficulties that weave through the processes of manufacture and prescribe his limits are there. If he goes beyond those limits, excepting in the way of cautious experiment, he is bound to feel its results. He may reap some temporary gain over his competitors, but in the last analysis it will come home to him as a definite loss. Anything that is not for the ultimate good of the business as a whole, that is not "for the good of the line," is another hunk of concrete, however small, that helps to pave the way toward complete disintegration.

You decry and condemn the ethics of the concrete man's methods in promoting the sale of his product. The burden is placed on you to prove that everything, from a towering skyscraper to a lady's watch, cannot be made from concrete, as he says it can. You want to know who it was, anyway, that put the con in concrete? You say, "If it's cheap, it's not good, and if it's good, by the same token it cannot be cheap."

But go slow, Mr. Brickmaker. I don't know of anyone who has given quite as much aid to the concrete man as you yourself have. The money and energy you have been expending in fighting among yourselves he has been devoting to the propaganda of trade extension. He soon saw the devastation a trade war could cause, saw its uselessness, saw the golden promise of unbounded prosperity in team work for the good of his line. Such mutual help has improved his product, while you have been cheapening your own in order, not to get under the concrete man, but in order to undersell a brother brickmaker. Watch out! First thing you know the concrete man will be wanting to know what it is that goes into a little piece of singed clay that gives it such everlastingly noble quality and, by Jo, if you run the quality down too low, it'll push you like Sam Hill to make out a case.

If you sacrifice quality to cheapness, you are not counting the cost. If you throw ethics in salesmanship to the wind, you are not counting the cost. And so we see that, while cost accounting and counting the costs merge eventually into the same road leading toward ultimate profit, they are of equal im-

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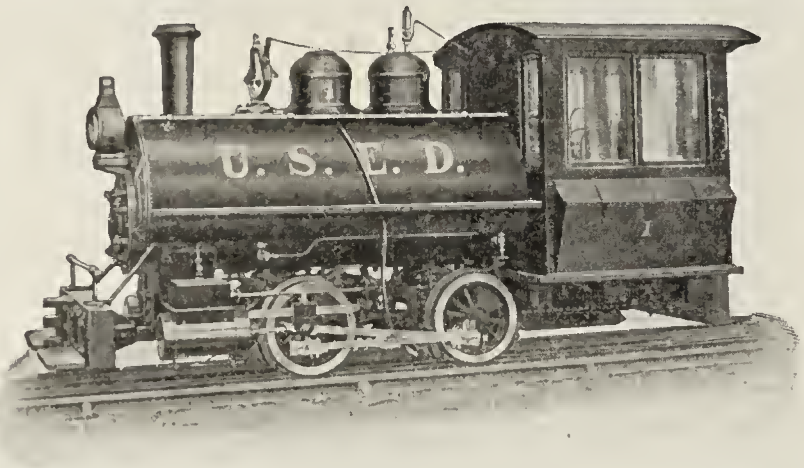

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portance, the latter occupying the broader field with effect not so closely connected with cause nor so easily discernible.

Many small clay plants are models, both as to the neatness with which they are built and operated and as to the quality of ware they turn out. The one-horse plant, as we call it, is, however, much more apt to deserve the slur, the plant dirty and unkempt, the product poor, with no effort at cost keeping and less to determine what is wrong and improve the quality of the ware.

Here is where a good system of bookkeeping and cost accounting, however simple, would be of vast assistance. No plant is too small to allow this end to be ignored, and such methods lead as surely to the improvement of product as they do to economy and manufacture. While cost accounting systems can be simplified to the last degree, and ultimate costs arrived at with no very great amount of trouble and expense, still, to the brickmaker who has "kept his books under his hat," the simplest form seems very complicated. Then the co-ordination and comparison of results from day to day, month to month and year to year, is the most important part and must be understood in order that the full benefits of the accounting system be realized. However, once understood, there is no great difficulty in arriving at the essentials which the system should be designed to show.

In one town the writer knows of, a cursory examination was made of the books and office methods in use by the different brickmakers from the largest to the smallest. The idea was to show that the brickmakers themselves did not know what their brick were costing per thousand, and that if, by proper systems of accounting, they could be shown just what their costs actually were, there would be much less of a disposition to cut prices below the profit point.

The various methods of keeping accounts thus uncovered were many, and ranged from the most up-to-date to the most archaic. The original supposition was proved to be correct, in that the brickmaker, with the crudest methods of keeping his books and costs, if he kept any, was shown to be the one who claimed he was making brick the cheapest and was most prone to cut the price.

Those items of cost, less tangible than pay-roll and fuel bill, but which just as certainly must be counted in costs, were minimized or lost sight of entirely. These men actually believe that they are making brick much cheaper than they really are, where as a matter of fact they are only making a daily wage, if they are not actually slipping and losing money.

Without some system of knowing just where and how they stand, it takes years to develop the fact that machinery and kilns are worn out with no money laid away for their replacement; the clay supply is almost depleted and its value at last made known by the information that adjacent clay property can only be secured at a prohibitive price; or to what extent the land on which the plant is located has been damaged or benefited by the clayworking operations. In other words, through ignorance this fellow has neither "cost accounted" nor "counted the cost."

The very opposite of this case is the big plant with every labor-saving device and a thorough method of keeping costs that holds each item down to the minimum. Such a plant means a large capital investment and highly paid executives. Continuous operation at full efficiency means minimum cost. Overhead and selling expense occupy a much more important place on the cost sheet and, while its total figure might stagger the little brickmaker, at anywhere near full capacity, the proportion of this non-productive to the productive expense is none too large.

But let trade fall off and the capacity of the plant be reduced far below the normal, then watch the proportion of this overhead and selling item on the cost sheet soar. What's to be done? The expense of executives and managerial ability cannot be lopped off now. Brains are needed more than ever. Selling expenses, such as advertising, salesmen, agencies, etc., cannot be discontinued without a further shrinkage of sales. The solution usually arrived at is to get into the other fellow's territory, however remote, sell brick at cost or under at the plant, put the rest into freight and a vigorous selling campaign, thus keeping the plant at full capacity. We don't make a cent, perhaps actually lose money on the brick thus sold, but we hold the costs down and make money on the brick sold in our own logical territory.

But what of the fellow whose territory you have thus invaded? You have gotten into a town that has been supplied with brick by some local or nearby manufacturer at a fair profit-bearing price to him. You have cut this price and gotten the trade, and what have you done? Simply sowed the wind. You have not counted the cost. You have established a low price for brick in that town. You may never sell another brick there, but if you do you will find the price as low or lower than where you left it, and you will also find a brickmaker that is fixing himself to invade your territory just as soon as he can. At that, he may be one of those chaps who doesn't know his costs as well as you do, and the way he will invade your territory will be something fierce.

Even if he can't or doesn't start out after your scalp, the prices you have made will start back along the line, from town to town like a pestilence, and gradually come home to you. A prospective builder will say, "I was in such and such a town the other day and saw some of your brick. The man told me he had bought them at such and such a price. How is it that you can sell brick away out there for $7.50 when you are charging $9.00 right here at home?" He might threaten to buy them out there, have them shipped back and get them to his job cheaper. I have known this very thing to occur.

It's the same old saw. If Carnegie can sell rails for ten dollars less in Europe than he does here at home, what's the answer? Take the tariff off. If a railroad can haul 100 miles for a certain rate, no more should be charged to an intermediate point. This tariff has been taken off. If you can ship fifty or a hundred miles and sell for less than you do in your home town, your customers are going to find it out and they'll get busy on some method to make you take the tariff off.

And how pleasant it is, for the man who knows what his brick are costing him, to be brought into competition with the chap who doesn't know. It is a motion picture familiar to us all, though never having been shown upon a screen. You pay a visit to the contractor with the job in his pocket and are kindly invited to make prices. You do this. The enigmatic smile appears upon his countenance. It indicates the wisdom of the ages generously mixed with deep sympathy for you, and he informs you that he has your prices "skinned a city block." You ask what brickmaker has made the price and the smile broadens to one of evident inquiry as to whether or not you see any particular shade of green in his eye.

It is no part of his program that you should know who has made this low price. You are the brickmaker and the fish to be hooked. You are supposed to say, "Well, I don't give a whoop. Show me what those prices are and I'll beat 'em." That they are given by the firm that doesn't know what cost accounting means or that couldn't deliver the goods if given the order makes no difference to the contractor. A price is a price to him, and he'll make it regulate the price of the man who can deliver if at all possible. But the point is, Mr. Brickmaker, if you act as per the above program, are you counting the cost?

Isn't it a fact that you are simply paving the way for further reductions in the price? You adopt the above method of one job, isn't it reasonable to say that you will adopt the same on the next job with a further reduction in the price? To make a fair price on your product, to stand pat on that price whether you land the job or not, isn't that the better method? The answer that your plant would be shut down while the other fellow would be working overtime is not sufficient. Some one of a dozen or more contingencies is bound to intervene. The other fellow will be so filled up on orders that he cannot make deliveries, and orders canceled at his plant will revert to yours without the contractor saying a word about the price. Or the other fellow, on account of his rush, will raise his prices to the level of yours; or he will run out of clay; or his men, thinking from the activity of his plant that he is making too much money, will strike for a raise, something is bound to intervene because he has not counted the cost. In other words, the natural law of averages is bound to apply, to the detriment of the man who does not count the cost, to the advantage of the man who does.

And right here comes in this proposition of handling the contractor, or rather of being handled by him. When a building boom is on in your vicinity things are fine. The contractor is around begging for deliveries at any old price. But when the conditions are reversed, these gentlemen seem to surpass themselves in thinking out schemes to beat down the price of brick. He'll pay the price of steel per ton, of lumber per thousand feet, of cement per barrel, or of plaster per sack, and never murmur; but when it comes to the brick he grows diabolical in his joy in contemplation of the fun he is to have at the expense of the rival brickmakers. The ingenuity he displays in working these poor simps, one against the other, is surely worthy of a better application. Most of them, not knowing their costs, or where to stop in the matter of price cutting, of course makes it easier for him, and also you cannot blame him for buying as cheap as he can. However, be it said to the credit of the contractor, that he would not object to paying the fair and proper price for brick if he knew that his competitor could not buy any cheaper than he could.

This attitude of a contractor is a trade abuse. Its correction, by a single brickmaker holding to his price as mentioned above, would be almost impossible, if not quite so. Through the right kind of trade association and co-operation, that would teach the brickmaker what his brick are costing him and what a fair price is, there would be no trouble at all in its correction. The public at large holds the same attitude toward brick and the brickmaker that the contractor holds. And why shouldn't this be the case? Brickmakers, especially those just entering the field, are prone to boast, not of the quality of their wares, but of the cheapness with which they manufacture. The public also knows that our raw material costs us absolutely nothing. They not only know that brick can be made cheap, for next to nothing, but we cinch the idea in their minds by telling them so. Are we counting the cost?

Then there's the brick machine man and the kiln man busy in promulgating the same idea. A farmer has a field that is too poor to grow any kind of a crop, the yellow clay is sticking out all over it. He gets a brick under his hat and the first thing you know some machinery salesman has loaded him up with a complete outfit, and there's another plant to reckon with. He's taken the farmer around to plants where his machinery is in operation and showed him how easy it is, how cheap they are making brick and how much money there is in it. The farmer wonders why he has been dubbing along at farming all these years with such a gold mine right under his feet. Of course, the machine man's argument is that if he does not sell him, someone else will. New business has got to come from somewhere, and only a fool would talk himself out of a sale. Maybe so, but the fact remains that if that farmer had been led up to see the long list of expenses and the actual difficulties connected with the manufacture and marketing of brick, if it hadn't been painted quite so rosy hued, would he have embarked?

There was a young machinery salesman who was very active in this manner. He knew just what it cost to make brick. He could prove to you in black and white that brick could be made and put down at the job for $4.50 per thousand. He seemed to have the courage of his convictions, for he resigned his job and took a position with a Texas brick concern. The arrangement was of his own making and was to the effect that he was to be paid a certain price for the brick he turned out, and was to get his out of what he saved between this price and his actual cost of manufacture. He figured he had a gold mine, but overlooked the fact that his figures started from the wrong end of the line.

A few months' experience saw him back a sadder but wiser boy. He had learned that he wasn't a brickmaker, also that there were a great many things entering into the cost of brick that he hadn't thought of. His ability as a brick machinery

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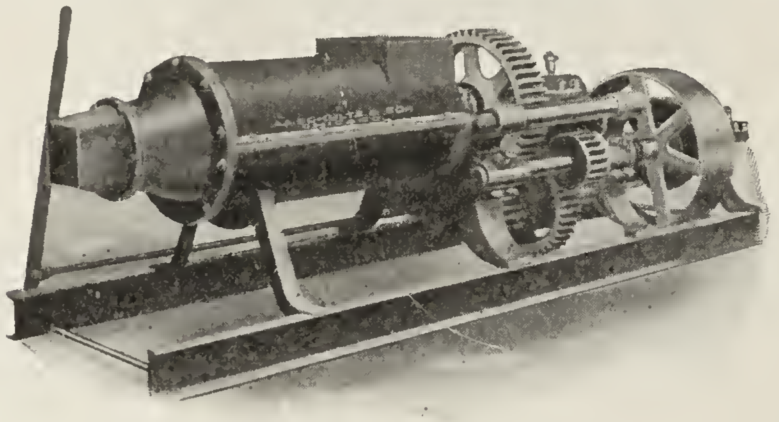

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salesman was somewhat impaired by the experience also, since he had convinced himself of the fallacy of his chief argument. However, he is still in that line and successful and is certainly the man to whom I should send an innocent for information on the cost of making brick.

How often do we see the credulous brickmaker persuaded to buy some certain machine or kiln devices, which according to the advertising and the salesman is sure to cure certain defects in his ware? The efforts and attentions of the salesman in making the sale are limitless, but after the sale is made—Good Night. The brickmaker has the machine or kiln and it is up to him to make it do what the salesman and the pamphlets told him it would do.

Oh, yes, I can see them bristling all around me for the fight. We guarantee every machine or appliance or kiln, etc. Yes, I know; but as a matter of fact does their guarantee amount to anything? Has any machine or kiln man ever sold an old, experienced brickmaker anything in which his reasons for purchasing were purely and simply the guarantee and not his own inherent judgment that the appliance was what he needed and that he could make it do the work he needed it for? Sure, the guarantee was there, which perhaps strengthens his reason for buying; but did he give it another thought? Didn't he take the appliance and work with it, find out its weak points, strengthen these and change it to suit his own particular conditions? Yes he did. Has the machine or kiln man helped? Some, perhaps, but not to the extent that he should have. You buy from a certain machine or kiln man because you think he has had the experience with this device and you want the benefit of that experience and are willing to pay for it. But do you get it? It has been the brickmaker in the past who has realized the need for certain changes, that has borne the cost of proving or disproving the practicability of the various devices brought out in the way of improvements. It's the machine or kiln man, quick to make the sale but slow to see that the device is doing all it should do for the purchaser, that is not counting the costs.

I know one brickmaker who hasn't a patented device on his plant. When he ran across the need for a certain machine he built it. If it was wrong he changed it until it worked. He has dry-presses of an ancient, complicated and now obsolete pattern working, and they are making good brick economically. He has kilns of the old Dutch type and some rectangular down-drafts of his own get up, and these down-draft kilns are excellently built and you never saw prettier burns.

Of course, in the matter of dry-pans, pug-mill, auger machine, etc., and he has all of these; he adopted a standard make, but the dryer is his own design, and it dries brick as well as the best. In fact, his plant is a model in that it is kept as neat as any plant I have ever visited; it makes good brick and declares a dividend regular. Building, as he has built it, adding on from time to time, the agreement is not all that it should be, but this is no great hindrance. This man has worked very hard and, though growing old, he still works hard. Not long ago he said, in conversation with me: "There's no use for those fellows to come here. I don't want their machines or kilns. If I bought them I'd have to work out my own salvation anyway, so why not use my own judgment from the start? I haven't found it any more expensive, and I've tried both ways."

This view may be a little harsh, but I've seen and know of some instances where the brickmaker, after buying, was abandoned to his own devices, left to work his way out as best he could, and then, if, after no end of trouble and expense, he made his purchase work, I have seen the machine or kiln man again on the ground, getting pointers and claiming all the merit for their machine's success.

And I have heard the expression from a great many brickmakers, in the nature of a wonderment, as to whether our N. B. M. A. wouldn't be more to the benefit of the clayworker if machinery and kiln men were excluded. Witness the following: "I have thought many times of what great economy and what tremendous saving there would have been to the clay manufacturers of this country could we all have profited by each other's real experience." "While I have attended only a few conventions, it seems to me that they are almost dominated by the influence of the large machinery and kiln companies. There are so many of these fellows representing these concerns and they are so active and such good fellows that it is very hard to hear anything but good about their particular machinery and kilns. It is only by going to considerable expense and taking a good deal of time that one can get any real information about the experience that different manufacturers had."

"It seems to me that most manufacturers are too reticent in telling all the truth in regard to any unfortunate investments that they have made in equipment. The tendency seems to be to get over it and forget it and say nothing about it. Instead, a great many of these same fellows stand around and talk as though they had never had anything but smooth sailing, whereas, in my own mind, I do not believe that there was ever a manufacturer in our line that has not at some time or other been a victim, you might say, to the over extravagant claims made by the people who have the things to sell us. 'I wonder if we would not have a better association and better conventions if it would be possible to eliminate all machinery and kiln men and permit the attendance of only bona fide clay manufacturers?' "

The above is an extract from a letter I have from a brickmaker who has lately had a very unfortunate and very costly experience of the kind above related. The machinery and kiln men have not counted the cost, but it is our fault as much as it is theirs. And I do not believe it advisable to restrict the membership of this National Association to the clayworker alone. The Structural Clay Manufacturer's needs can best be served in a manner spoken of above by the state or district or more local organization, just as the tile men and the paving brick men and the machinery men have organized to further their own specific needs.

We are in business to make money, not to become millionaires, but to make the profit out of the capital we have invested and the thought and labor we put into our work, that it is rightly entitled to. The sheer unscalable wall of government regulation is to the front of us, the rising tide of prices of the necessities of life, of labor, of raw materials, of freight rates is behind. On this tide are boats of lumber, steel, yes, boats of concrete. But we do not seem to be able to build boats of brick or hollow tile. These products are not being carried on this tide to safety, but, like plummets, seek the bottom. This should not be so, and one of the means for correcting this low price evil, a means within the law, easy of application, a means every brickmaker would be bound to respect, and that is to show him what his product is costing him to manufacture.

The selling price of brick in different sections of the country differs materially according to conditions, and this difference is measured by dollars. The cost of manufacture in plants of any particular locality varies little and is measured in cents. Why should the selling price, then, in any particular locality, be set by the man who doesn't know his costs? Or why should the man who does know be backward about opening his books and methods to his fellows and showing them what his costs are and how he arrives at them?

It's a hard proposition, this, to get the right price for your product. There are many ways proposed, the open price, the single selling agent, etc. But I maintain that one of the longest steps toward this end is to learn to know your competitor. Find out what his troubles are; he has 'em same as you have. Help him over a difficulty and he'll come back with some information that will help you over one. Discuss costs and methods of manufacture, contractors, freight rates, the encroachment of reinforced concrete, advertising the advantages of brick construction. Talk over all the trade abuses that occur to you and that ought to be corrected. In other words, work together to count up the costs.

And when you think of it, gentlemen, isn't that association work in embryo? Isn't that what trade associations are for? Can't the friendly recount of experiences and the discussion of comparative costs be carried on by 200 as well as by two? Not to meet behind closed doors and hatch out schemes for boosting the price to high and higher levels; form gentlemen's agreements or any other agreements in restraint of trade; but to go at the thing the other way about, to show one another our mistakes in manufacture in computing costs, to correct the various trade evils that cost us many dollars a year, and to work together for the good of the line. (Loud applause.)

Perhaps no one is better equipped to discuss the subject of "Profit and Loss in the Brick Business" than Charles A. Millar, president of the Canadian National Clay Manufacturers' Association, and owner of one of Canada's largest and most successful plants. He understands the profit-end as his wonderful record attests. He said:

To those outside the trade in which you and I are engaged the title of this paper may seem absurd, as, to many, there seems only one side to the business, and that, a profit or how big a dividend may be declared. With the one idea in mind that there are two sides to this topic, and as business men, we are to look at it fair and square, and deal with the facts first hand then show to the investing public that bricks are not all made or lined with gold. It is a simple process to dig your material from old Mother Earth, manufacture it into bricks and sell it at from eight to twenty-five dollars per M according to different grades manufactured, but before this part of the business is reached, a tedious and expensive process must be gone through, which is not necessary for me to explain here to men who have made a life-long study of clays. The secret of success in any line of manufactured goods is to have a market where your output, whether large or small, can be disposed of without costing too much. As an instance of this, the writer has vivid recollections of a promoter who had invented a wonderful soap, guaranteed to take out all the dirt from soiled linen, soiled skin or even soiled characters. There was no doubt the product had merit, and, as I had just returned from a six months' holiday, this certainly looked good. "Getting in on the ground floor," as the saying is, by putting up $1,000 for a start and several thousand afterwards, the company was launched. Machinery was bought and manufacturing started. Several hundred cases were practically given away to advertise the goods. We found the people would take all you wished to give away, but if they had to buy they would get what they always used. I have traveled six hundred miles to sell six cases, on which the total profit, if manufactured in large quantities, would probably have been $5.00, and my expenses $50. A "To Let" sign was soon on the factory again. The inventor is still dreaming of millions, while he borrows a few dollars from his friends until he sells the patent right. It would have cost several hundred thousand to create a market. Most of our large brick plants are situated near the larger cities on which they depend for their market, some near enough to haul by team or motor truck, some a few miles out shipping in on cars. The nearer the city the more expensive is land, and some men figure that by buying outside freight rates are easier than interest charges. Let us see if we can come to some conclusion in the matter. About ten acres is a small enough amount of land on which to build a plant. We will say this is worth $5,000 per acre, so we have $50,000 tied up in land. To put up a plant of say ten million capacity yearly, with all necessary equipment, kilns, etc., would cost $50,000 more. Before a start has been made you have paid out, or made yourself responsible for $100,000, or an interest charge for a start of $6,500 annually. Working capacity must be had, so the banker is consulted and he consents to advance, say $10,000, providing you turn over to him all you own, brickyard, house, mortgages, life insurance, etc., and by the time you are ready to run you have $10,000 per year for interest charges. What should a man make on an investment of this kind to make it pay? Having in mind the thought that this man is making ten million annually, he cannot afford to make less than $2.50 per M net profit on his output, or a few

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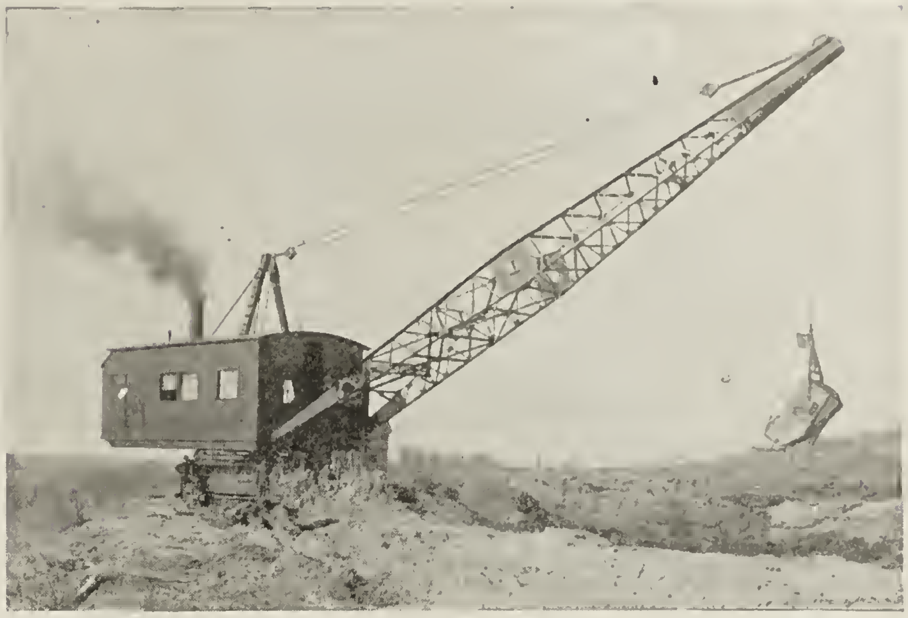

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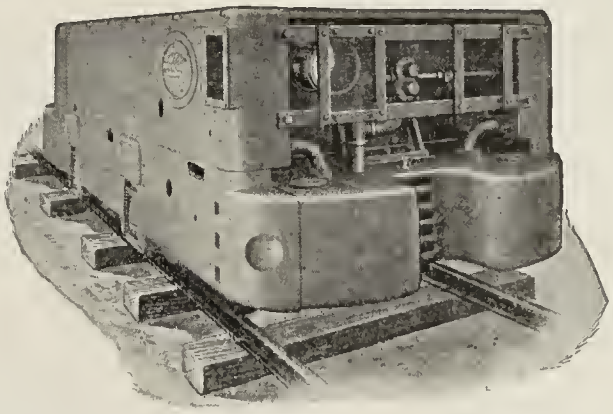

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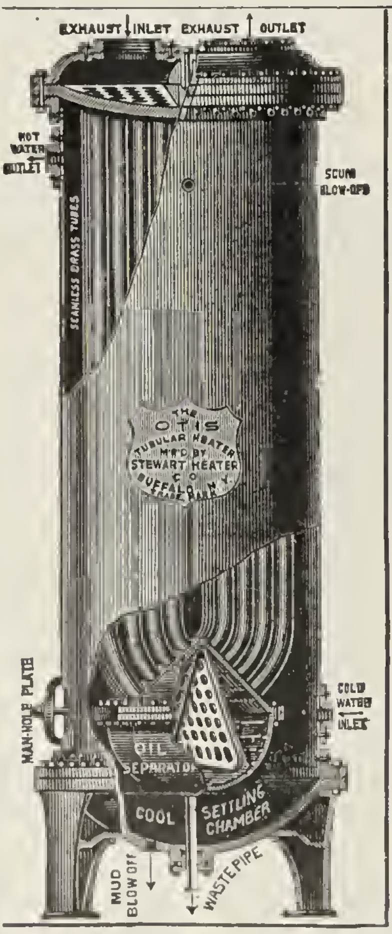

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years hence when the plant and kilns need repairs, he will have nothing to make them with. By the time a man figures his overhead expenses and underground expenses and surface expenses, he will find that, with the smoke from the kilns, his profits have gone skyward. While this is what should be made, what are the facts? In a great many instances the brick men are not associated in any way, one man quoting one price and another still lower, until life is cut out of the business, and the contractor is playing them for sucker, and some one, I am sure, is saying now, what is the remedy? First. Belief in your business—that you have the best building material on earth, for God Himself formed the first temple, "Adam," from the "dust of the ground," and "breathed into him the breath of life." Second. Publicity. Let the people know by advertising what you have to sell. Third. Organization. Fourth. Open price for your own community.

Let me enlarge a little on one or two of these headings, as success or failure to your business lies right here. Are you satisfied that you have the best building material in the world? If not, you cannot convince anyone else you have. Does your product show that you have breathed into them the best in you, or does any old thing go and you expect to put them through in a jam and get a good price for the same? If you belong to that class you have only a third-rate building material and are probably now getting more than it is worth. It costs no more to handle bricks right than wrong. Watch every stage from day to day, always trying to improve your ware, and soon you will have a No. 1 article. Only today, talking to a neighbor brickmaker—note we are on speaking terms—he said, "It will be impossible to sell brick at a given price and compete with sand lime." And I answered, "I am not in the same class, nor am I wanting to compete with them." Sand lime may be all right for a horse house or outhouse, but for a dwelling where some class is required, show them you have the goods. There is just as much difference in bricks as in straw hats, you can buy one for ten cents or a Panama at $20. Put class into your ware and get the price. When you have a good article let the people know what you have to sell. Many of us are content so long as we get rid of our output, and feel flattered that we have the trade without advertising. Why not double up and push the business instead of allowing it to push you?

In any community where there is competition an organization is a great help. If possible have an open price on the different lines manufactured. Have faith in your neighbor and it is wonderful what can be accomplished. I know some are saying: "Now if he had such men to deal with as we have he wouldn't go far." But I have yet to find a man in this or any other line of business for fun, and if you can show him how to make more money you immediately interest him. If, through a simple plan of operation you increase the price of brick 50 cents per M surely your time is not wasted. Suppose you only make two or three million per year, you have made for yourself from $1,000 to $1,500 extra profit, and many a man is putting in twelve months hard labor for less. Ever keep in mind the fact that we have, without doubt, the world's best building material. Also try and improve your ware. Breathe life into it, make it distinct and classy. Let the people know by advertising what you have to sell. Give good value for all you get. Treat every man square and your balance sheet will show, after twelve months, that your work has not been for naught. The great majority of failures in this or any other business is lack of knowledge or no executive ability. How can a man make a success out of a business of which he knows little or nothing? In our city we have doctors, dentists, jewelers, woollen manufacturers and hotelkeepers, all attracted to the business by the lure of large profits and the likelihood is that a few years hence some one else will own the business and they will have the experience. I have in mind one man who has had the best chance to be a millionaire in the brick business that I know, he having owned one of the best deposits in the world. But as he had not the faculty of showing men how to go ahead, and as he was always wishing to be dressed up, with a handkerchief tucked up his sleeve, he failed. Today he is an oil salesman and his successors are worth millions. There is no place on a brickyard for dudes, and the man who has chosen that vocation must be down to overalls and shirt if it is to be a success. One cannot be too careful in regard to the testing of a clay bank, its location, absence of limestone or ginger stone, access to water and a dozen other essential features which make for failure or success. When one stops to consider the amount of money absolutely wasted in our business or by men anxious to get into the industry, it is amazing. Not long ago I visited a large plant where three-quarters of a million had been spent on equipment, and the superintendent told me that their permanent waterway would cost $25,000 to put in, being miles away. I visited another plant last summer where four splendid down-draft kilns had been built, only to find that after these had been erected the clay was unsuitable, containing too much limestone. These are only one or two instances where many could be given, and where you could supplement, I am sure, but these only show how careful one should be in locating. A great amount of money has been lost in experimenting with clays, kilns, etc., and has been the gateway through which many have passed out of business. While it is all interesting, man should not drop a sure thing for a shadow. Hold to your regular line and experiment cautiously on the side. I have known an experiment with kilns to waste a year's profits. So go slow. There is profit in the brick business if run right, and there surely is loss if run wrong. It is up to you to say which it is to be. (Applause.)

"Electricity in the Manufacture of Clayware," by W. D. Richardson, was one of the most valuable contributions to the convention. It follows:

With the introduction of the electric motor for driving, clay-working machinery, another perennial subject, has come before the meetings of our Association. Though the official report of our last convention contains two able papers upon this subject, our secretary receives so many inquiries as to the advisability of installing electric power in brick plants that he has asked me to add something from my experience, with the expectation also that in the discussion that may follow, others will contribute of their knowledge. As I have no interest in the sale of electrical machinery nor of brickmaking machinery designed for the direct-geared motor, there can be no suspicion of a motive in my case to make any exparte statements.

Every manufacturer is interested in reducing the cost of his power, though he has so many offers to do this by the introduction of numerous appliances, each of which is guaranteed to reduce the cost a certain considerable per cent, that he becomes skeptical when he adds together the claimed savings and finds that by adopting all of them he would practically wipe out the entire cost and get his power for nothing, barring, of course, repairs, depreciation and interest. There is magic in the word electricity, and advantage is taken of this by the makers of numerous medicines and appliances for the cure of nearly every bodily ill. There is an impression also that electricity is being advocated as a panacea for the power troubles of the brick manufacturer. At any rate the builder of a brick plant today does not seem to think that he is up-to-date unless he can say that everything is to be run by electricity.

But electricity is indeed wonderful, and we never get so familiar with it as to cease to marvel at this unseen, mysterious force that has been harnessed up for the operation of our machinery. And who is not attracted by a proposition to run each machine without line shafting, pulleys and belting by gearing it to an electric motor under control of the operator, at any convenient point, by the pressing of a button or the throwing of a small lever. And then if in addition to this there goes with it a promise of lower cost for power, it is not surprising that so many are calling for more specific information. Inquiries come from those who are to build new plants and from those who are considering the electrification of old plants. A treatise that would be a safe guide for action, even in a majority of individual cases, would go far beyond the limits placed upon me here. The most I can do is to attempt to give such an analysis of the subject and such suggestions from my experience as may be helpful in a general way to those who are considering the installation of electric equipment.

In the first place, let us assume that every modern clay-working plant makes use of electricity to some extent—at least for lighting, if not also for the driving of outlying machinery, such as pumps for drainage, fans for draft or ventilation, operation of machine tools, etc. This electricity may be delivered to them by some light and power company or may be generated in the factory engine room either by belting a generator from main engine or from a smaller separate engine. One who has once used electricity for these auxiliary purposes would certainly not be deprived of it.

The question in our present discussion is whether the whole factory had best be operated by electric power. As all are in business for profit, it must be shown before adopting electricity in any special case that the annual net income to the manufacturer will thereby be increased. In studying the power problem for a new plant, manifestly the first thing to do is to get as accurate figures as possible of the cost, under the local conditions, of operating all machinery by belting direct from engine to line shaft, and of the cost of operating by electric motors, the electricity being purchased from a power company or generated by the brick company. If electricity is to be bought delivered at the factory, the problem is much simpler, but while central electric power stations are being more widely distributed every year, yet, in many, perhaps the majority of cases, brick plants are situated where no such electric power is obtainable. In some small towns there may be a local electric light company, but generally without sufficient equipment or capital to undertake to furnish the power required. In such case it may be advisable for the brick company to buy the electric light plant for enlargement or removal, or to arrange to generate electricity for both plants and sell the current to the lighting company.

If the problem is one involving the change to electric power in an established brick plant, data should be available that would enable an accurate calculation to be made of the actual cost of power, from a year's operation, under existing conditions, so that a comparison can be made with the cost of the proposed electric power.

If the electricity is to be generated at the factory, reliable cost figures can be obtained from any competent engineer. There is no question but that, under usual conditions, a power company can generate electricity at a large central station cheaper than the individual manufacturer and, within reasonable distance, can afford to sell it at a price so low that the manufacturer need not consider any other power proposition, but the question is, will the power company sell at such a price—will it make a satisfactory contract for a definite period? No small or moderate sized brick plant should be obliged to generate power in a section where there is a central power station. But what is a reasonable price for electric power? At what price can the producer sell it to the consumer and leave a fair margin of profit on the investment? Evidently no definite answer can be made to this question without knowing the conditions, but electricity is being generated by coal at central stations in Pennsylvania and Ohio and sold to large consumers as low as 1⅜ cents per K. W. A central power company was being promoted in the Hocking Valley region of Ohio that were offering electricity at 1 cent, but the project has not yet been carried out. A company having a large brickmaking plant, or two or more factories near each other, can probably generate its electricity in a central power plant cheaper than it can buy it. The small or moderate sized plant, properly arranged, if it must make its own power, will find it cheaper to stick to the old method, and leave out the electric generator, except perhaps for the small auxiliary requirements I have mentioned.

For the past three years I have had charge of two face brick factories, about 1,500 feet apart, one a dry-press plant with all machinery operated from shafting belted direct from a Corliss engine, and the other a wire-cut plant operated by electricity generated at the dry-press factory. Unfortunately, the conditions are so complicated that it is practically impossible to

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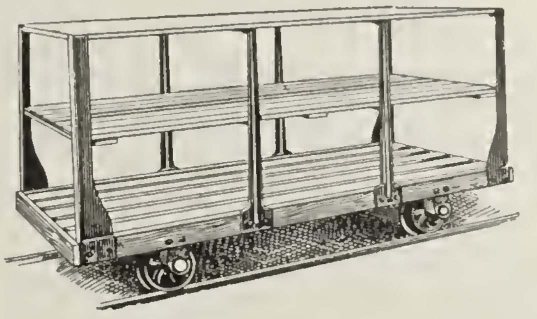

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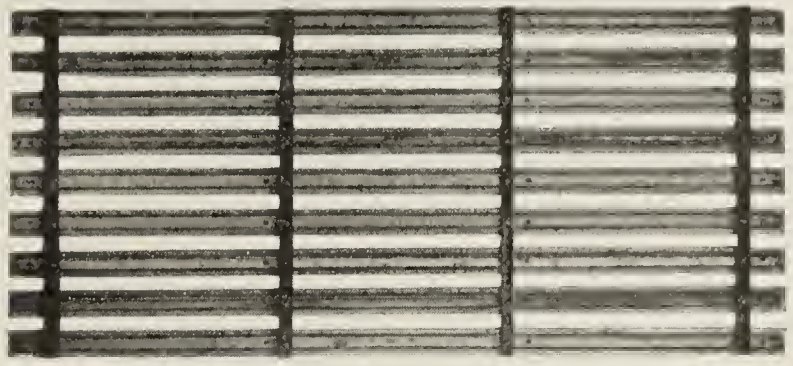

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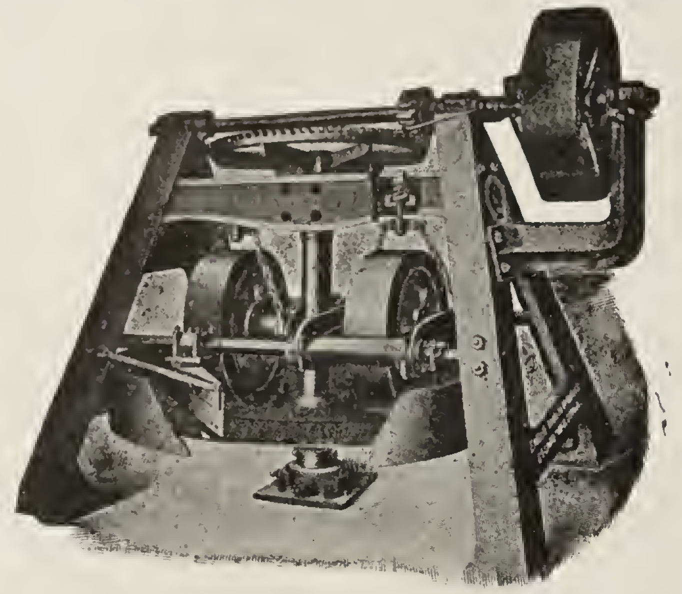

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calculate the cost of power for each plant separately, since the same boilers make steam for both factories, and one large engine that drives the dry-press plant direct is also belted to a 150 K. W. alternator that generates most of the electricity used in operating the stiff-mud plant. Moreover, there are steam pumps and also electric pumps in the clay mine, and the clay is raised to one factory by a steam hoist and to the other factory by an electric hoist, but the steam that furnishes the power for both comes from the same battery of boilers. In addition to these, there are several other complications that would make separate cost accounting rather difficult and unsatisfactory, so we keep an accurate total cost and an approximate distribution for each factory. The total cost for power at both factories for last year was 84 cents per thousand brick, but this includes the operation of an 80 K. W. alternator during a shut-down of nearly three months and the furnishing also of steam for mine pumps and heating press-room and office, so the figure has no value as an illustration here. Therefore, the best I can do, in the little time left to me, is to give empirically the results of my experience by answering briefly some of the questions that must come to one who is considering the installation of electric equipment for brickmaking or other clay product factories.

1. **Direct or Alternating Current?** Which is preferable in a clayworking plant, direct current or alternating current? The alternating current induction motor better meets the requirements, since it can be practically protected from the dust, which damages the commutator of a direct current motor. A. C. current motors are more simple and substantial than the D. C. motors and are less expensive in their upkeep. These are now built with a fair amount of speed variation, if desired, and also for heavy starting duty. In most central power plants now the current is generated A. C. for ease in transmission, and it is not advisable to transform such current to D. C.

2. **Should Motors be Direct Connected to the Machines, or Belted?** So far as my experience and observation goes, the direct-connected motor drive has not been successful in brick plants. Such installations have been made, but in every case that I know of have been changed to the belted drive. The rapid wear of the running gears and the vibration of the motor by the machinery, as well as the dust, have made the direct geared drive impractical.

3. **Should There be a Motor for Each Machine, a Motor for Each Group of Machines or One Motor for the Whole Factory?** Ordinarily, it is more economical and practical to use one motor for each group of machines that must be operated together. For instance, a dry pan feeder, dry pan and elevator and also screen, if power is required, should be run from a shaft driven by one motor. In like manner, pug mill feeder, pug mill and augur machine and cutter should be operated by a single motor. The advantages of this arrangement over that of a motor for each machine are, (a) considerable lower cost for interest, depreciation and repairs, (b) easier to place motor on a firm foundation and out of the dust, and, (c) the efficiency of the large motor is greater than that of the small motor.

A single motor for the whole factory has the disadvantage that if a part of the factory is shut down, the large motor and the whole shafting must be kept running, making a large friction loss and some inefficiency in the motor.

4. **Location of Motor.** It is important that the motor have a firm foundation, and motors, even the so-called "dust-proof" type, give less trouble and are less expensive in their up-keep when situated out of the dust.

5. **Repairs.** An induction motor on a firm foundation and out of the dust and properly lubricated calls for less repairs than almost any machine or engine in the brick plant. We have fan motors, 20 H. P. and under, that have run constantly, nine to ten months a year for five years, without a dollar for repairs. On the other hand, we have the same motors running only nine hours a day in a dusty factory that have caused frequent stops for repairs. One 50 H. P. motor, running a dry pan, was very troublesome and expensive to keep running on a factory floor, but when placed outside of the building on a firm foundation in a little house built especially for it, and shut off from any communication to factory except by the shaft extending into it, ran for a year without repairs.

The subject of repairs is a delicate one for the salesman of electrical equipment, since he knows all repairs must be obtained from the factory making the machine, that the prices for repairs are high, and that it generally takes a long time to get them.

6. **Care of Electric Machinery.** Generators and other appliances and instruments in the engine room are generally placed in charge of an engineer who realizes the importance of keeping machinery clean, properly lubricated and adjusted and running as coolly as possible. A careful, competent engineer, even with little knowledge of electricity, will soon learn to run his department without trouble, though, of course, in a large establishment a trained electrical engineer would be employed.

The motors in the factory may not have as careful attention, but it should be somebody's duty to examine these every day. If they are in a dusty place they should be cleaned daily, the dust blown out with a bellows, or better, with compressed air, the space between rotor and stator frequently noted, the bearings examined to see that they are taking oil, and once every week or two the oil wells should be drained. All oil and water should be kept from the windings. New bushings should always be ready for replacement. Starting boxes should always be ready for replacement. Starting boxes should also be examined occasionally.

7. **Does It Pay?** The most vital question connected with the whole subject, and the one that I take it is of chief interest to most of you, is, will it pay for me to drive my factory with electricity? As I have already stated, a definite answer cannot be given in all cases without knowing all the special conditions, so that whatever general statement I may make is sure to meet with exception by someone. Any single individual's experience is necessarily limited, and if his advice is given from his own experience alone, it is generally not a safe guide. If electricity can be bought at a cost per H. P. no greater than that of direct engine power, including interest, depreciation and repairs, it is a safe proposition. Consideration, however, should

be given also to the use of exhaust steam for die lubrication, drying wares and heating of buildings.

If the manufacturer is to generate his own electricity, he has a more serious problem that should be thoroughly investigated and carefully considered before action is taken. Generally, however, a single brickmaking factory, properly engineered, should not undertake to generate electricity for power with a view to lessening power cost. Large plants having several sets of machinery, and where the places of the application of power are widely separated, will find electricity profitable.

We may look forward to the day when every section of our country will have central power stations where electric power can be bought cheaper than any power can be generated by the manufacturer, and then the manufacturer of clay products can be relieved of the investment in a power plant and of the trouble and expense of the dirty and inefficient steam boilers and engines. This may not be realized in our day, but rapid advancement is being made. When we consider, however, that though it has been known for many years that a public service company with a central heating plant could heat all of the houses in any community with greater comfort and reliability and better sanitation, yet how few towns or cities have taken advantage of this, and that most of us are still our own firemen and our families still have the annoyance of coal dust and ashes and cistern water blackened by soot, we must guard ourselves against being too sanguine. But the time will come when electricity and its application to every-day life will be taught, in a practical way, not only in engineering colleges and technical schools, but also in our common schools—in the grades as well as in the high schools—and then there will be a more widespread use of this wonderful and serviceable power in our factories and in our homes, to the great relief of the manufacturer and of the housekeeper. (Applause.)

Thursday evening the annual banquet of the N. B. M. A. was held in the banquet hall of the Grunewald. Characteristic of similar functions in the past it was the central social feature of the week and drew out elegantly gowned women.

L. E. Bentley, of New Orleans, acted as the toastmaster and added much to the enjoyment of the evening, and especially of the speakers, he having an exceptionally original method of introducing each.

J. S. McCannell, of Milton, Ontario, was the first speaker and responded to the toast, "Our Border Line." Other speakers scheduled were: D. V. Purington, Ocean Springs, Miss., "Our Chart;" Dr. William McF. Alexander, "Our Hobbies;" John C. Boss, Elkhart, Ind., "The Road to Happiness;" J. J. McLoughlin, New Orleans, "How to Throw a Brick;" Charles J. Deckman, Cleveland, Ohio, "Every Brick Man;" Herbert N. Casson, New York, "Shock Absorbers."

Each of the speakers acquitted himself admirably and received a wealth of applause. Mr. Casson, of course, being a professional entertainer and one of the best shoulder-to-shoulder talkers in the country, did not fail to interest his audience.

The menu served was in keeping with New Orleans' famous cooking and was especially arranged by the chef of the Grunewald. It follows:

Ripe Olives Salted Almonds Celery
Oyster Cocktail—"Souvenir"
Green Turtle Soup—"Xeres"
Lake Crab Meat—"Casino"
Parisian Potatoes
Milkfed Chicken en Casserole—"Grunewald"
Asparagus Salad
Meringue Glace
Petit Fours
Coffee

The reports of the committees and other miscellaneous business followed the concluding papers on Friday. When the hour for adjournment came, however, it was so late, a night session was decided upon to complete some of the unfinished business.

Several very interesting discussions were held at the close of the day's program. One of these was raised by John T. Hummert, of the Gem City Press Brick Co., of Quincy, Ill. Mr. Hummert wanted to know some practical method of cleaning off brick columns and brick buildings, and particularly inquired about the sand-blowing process.

A number of delegates entered into the discussion. One delegate, an architect from New York City, declared that

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We also manufacture a full line of Side Dump, Bottom Dump and General Purpose Cars, Transfer Cars, Turntables, Switches, etc.

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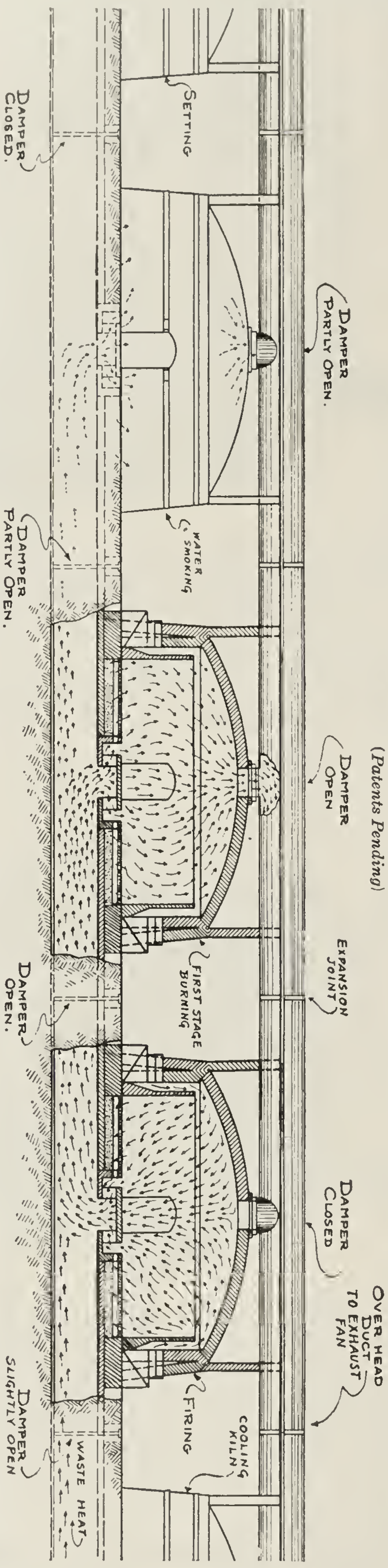

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It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

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Seeco Systems Secure Success in Old Plants as well as new.

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the sand-blast should not be used only in the case of a hard-burned brick. "The sand is apt to cut away the thin film on the surface of the brick," he declared.

This statement brought several to their feet. Will P. Blair said that he did not quite understand what the speaker meant by a "thin film."

"I mean that all brick, more or less, have a film. This is especially true of a softer-burned brick. If the sand-blast is applied this film or outter surface is cut away and the brick absorbs too much moisture."

"Most brick made today—especially face brick," said Mr. Blair "are hard-burned. They are imprevious and I do not believe that a sand-blast will affect them or impair their impreviousness. I do not see the necessity of using a sand-blast at all. Plenty of soap and water will be sufficient for the requirements."

This seemed to be the consensus of the other delegates and the discussion came to a close.

In the evening the adjourned business session was held. Several minor matters came up for discussion and were disposed of. Just as final adjournment was about to be taken the announcement was made that Herbert Kaufman, general director of the New Orleans Exposition of Big Ideas, wanted to address the convention on an important matter. Mr. Kaufman was sent for and because of his reputation as a man "who says things" drew a number of women to the hall and still more delegates who had not been in the meeting during the evening.

Mr. Kaufman, when introduced, launched out on a brief explanation of the purposes of the Exposition which New Orleans proposes to hold in 1915. He said that it was to differ from all other expositions in that it was not to be a record of achivements accomplished in the past, but a moving picture display of the immediate present and that it would anticipate things years ahead.

Congresses of all the various efforts of man to uplift and advance the interests, the comforts and the pleasures of the human race were to be held, and there was to be given an opportunity to show what efficiency meant to all lines of endeavor.

One of the statements that interested the delegates vitally was that the Board of Directors had determined to build a permanent exposition and because of this had decided to use brick in the construction of the one hundred and fifty or more buildings.

This was followed by the suggestion that the brickmakers of the Nation had a most excellent opportunity to use the Exposition as a great publicity movement.

The proposition suggestion provided for the free-offering of the brick to be used in the construction of the exposition buildings. The Exposition company, it was understood, would pay the freight on all brick sent.

"How many brick would be necessary to erect these buildings?" asked a delegate.

"Roughly estimating, I should say about 10,000,000," replied Mr. Kaufman.

The possibilities of the publicity movement were taken up in more detail at this point.

"With several thousand brickmakers throughout the country contributing brick to these structures—the first permanent, fire-proof series of exposition buildings in the history of the world, the interest of the country's builders would be drawn to brick," said Mr. Kaufman. "Our exposition has access to all the newspapers of the country and with our efficient press bureau we would see to it that every paper carried a campaign such as no other industry has ever enjoyed."

The smaller campaign conducted during the Chicago Clay Show in 1913, when the newspapers of the country gave considerable space to the "Brick House Built by Parcel Post" was cited as an illustration as what could be done.

"Not only would be the papers have column after column about the unique methods employed in constructing the Exposition," said Mr. Kaufman, "but for months prior to the construction would contain illustrations and other reference to the buildings themselves and their method of construction.

"For instance, we propose to employ the utmost efficiency in erecting these buildings. You have laid brick the same old way for centuries. I understand that Mr. Gilbreth has shortened the process by reducing the movements of handling a brick. We propose to employ the Gilbreth methods.

"In other words this exposition is an Efficiency Exposition. We expect to show to the world how quickly an exposition can be built and built permanently and we propose to do it with brick.

"The building world, therefore, will be watching our every movement, and we will see to it that it does not lag in its interest."

Mr. Kaufman's talk stirred up considerable interest and the proposition he made was discussed until midnight. There was a number of suggestions made but these finally simmered down to a concrete motion to give the entire matter into the hands of the Executive Committee for a thorough investigation. This committee is to confer with Fritz Salmen of Slidell and New Orleans, and, if Mr. Salmen approves of the idea, a report will be made to the N. B. M. A. indorsing the proposition.

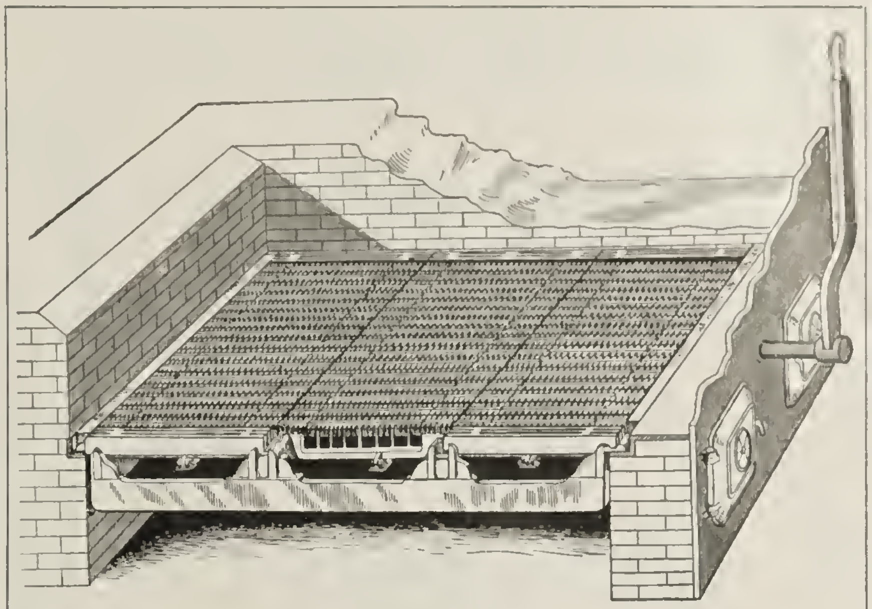
This brought the convention to a close.

Convention Brevities

The discovery of a pure white pearl in one of his oysters by A. A. Oldham, of the Bonnot Company, while eating lunch in the Forest Grill at the Grunewald, caused oysters to suddenly become a fashionable edible among the delegates and more than one clayworker, who, previously, had exhibited a decided indifference to the mollusk, just as suddenly developed a ravenous appetite for shell fish. It is said that E. G. Biechler, Hubert Somers, Harry Podolsky, Charlie Bonner, Paul Beer and a few others spent most of their time ordering oysters.

R. B. Frizzell of Monroe, La., one of the nearby delegates, is interested in the formation of a state clayworkers' association and a meeting is to be held in New Orleans May 6 to effect a preliminary organization.

Charles J. Deckman, of Cleveland, and Charles G. Stevenson of Wellsville, Ohio, who were on the coast of Florida enjoying the balmy Southern winter prior to the convention, decided to make the trip by boat to New Orleans. They started Saturday and should have reached the convention city Monday, but a storm struck the Steamer Brunswick on which they were and for 36 hours the ship battled the high seas of the Gulf of Mexico, waves nearly 40 feet high threatening to wash all on board into the water. It was not until late Tuesday that



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

The Martin Grate Co.
347 S. Dearborn St., Chicago, Ill.

DEWEY

Clay Plant Economy Should Begin At the Clay Pit

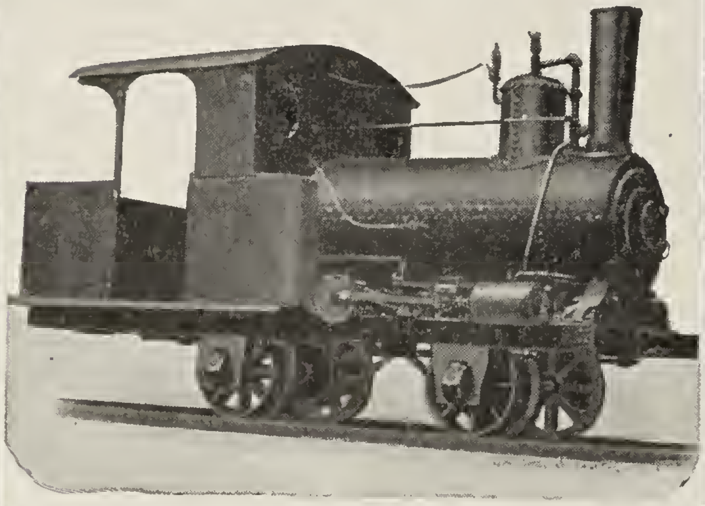
If you use Horses or Mules you are wasting money.

Increased Profits and Widened Markets are made by reducing costs. The place to begin economy is at the beginning of the process. Start right. Gather and Haul your Clay by Steam Power.

Horse Flesh and Horse Feed are going up, but the work done by both has not grown.

THE
DEWEY
FIVE-TON LOCOMOTIVE
COSTS
$1200

and saves its cost over and over again. Simple in construction. Reliable. Efficient.



It Should Be Working For You

A postal of the "show me" kind will put us on our mettle. We know we can save money for you.

DEWEY BROTHERS
GOLDSBORO, N. C.

DEWEY

they reached port, and both learned conclusively that "sea-sickness" is not a joke.

Charles Deckman, president of the National Paving Brick Manufacturers' Association, appeared in the hotel lobby Friday morning with a cream-colored serge suit, white shoes and hat to match. He was the envy of all the male delegates and the admiration of the feminine contingent.

Charles A. Bloomfield did his annual dance Tuesday evening at the N. B. M. A. cabaret and smoker and proved conclusively that he is still in the running.

F. Codman Ford, one of the New Orleans delegates, a manufacturer of terra cotta, exhibited a bit of ancient floor tile. It was from the floor of the Alhambra, Grenada, Spain, and is about 2,000 years old. Mr. Ford takes considerable interest in collecting old specimens of the brick and tilemaker and has a very valuable collection.

M. L. Sample, president of the Sample-Williams Clay & Color Company, Jackson, Ala., was one of the busiest men at the convention. His concern contemplates some early improvements and the machinery men soon had him spotted.

W. T. Bussell, with the Clay Products Company, of Brazil, Ind., acted as chief guide to more than one party through the old French and Spanish quarters and is said to have eclipsed any of the native professionals.

S. C. Johnson, general manager of the Southern Clay Mfg. Company, Chattanooga, Tenn., was an active participant in all the affairs of the convention.

T. P. Cuthbert, general manager of the Fallston Fire Clay Company, Pittsburgh, Pa., wore a fresh buttonhole bouquet every morning.

Fred Talbott, of the Laclede-Christy Company, St. Louis, Mo., arrived with a pair of winter boots, but the warm Southern sunshine soon convinced him of the errors of his judgment. Two hours later he was wearing a borrowed pair of light shoes and upon the opening of the shoe stores next morning he was the first customer on hand.

The first Marconi message ever received by the N. B. M. A. convention was delivered to Secretary Randall Tuesday. It was from President Deckman, of the N. P. B. M. A., and was sent at sea, explaining the delay of Mr. Deckman and Chas. Stevenson, of the Stevenson company, Wellsville, Ohio, caused by a storm in the ocean.

Baby Gould, the granddaughter of the N. B. M. A., was one of the bright spots around convention headquarters.

Several teas, luncheons and theater parties were given by the visiting women delegates. There never was a time when the women were in evidence more or when they took a more active interest in the affairs of the convention.

Miss Astrid Rosing, "the only woman clay product dealer," was one of the most active delegates at the convention and had her hands full looking after business interests and at the same time not omitting any opportunity to participate in the various entertainments provided for the ladies.

The American Clay Machinery Company gave a continuous moving picture show in its suite on the mezzanine floor. The films showed the process of brick manufacture and proved one of the truly great features of the convention.

C. P. Mayer, of the C. P. Mayer Brick Company, Bridgeville, Pa., who became first vice-president of the N. B. M. A., and who by the regular order of successor, becomes president in 1915, entered into every discussion on the floor and showed a great interest in the work of the convention.

C. C. Blair, of the Bessemer Company, Youngstown, Ohio, was declared to be the handsomest man at the convention.

William Conway, one of the executive committee of the N. B. M. A., and long identified with the association, "was on the job" every day from early morning until late at night.

L. E. Rogers, the dryer man, had a section of his new Uni-Trol dryer installed at the Salmen plant at Slidell and gave a practical demonstration to a number of interested clayworkers.

The Stupakoff pyrometer installation at the Salmen brick plant was not in evidence, owing to a lost shipment. The attention of the convention had been called to this equipment and W. H. Gibbs, representative of the Stupakoff Laboratories, was a greatly disappointed man. The material arrived Friday, the morning of the trip made by the delegates to the Salmen plant, but the time was insufficient to equip the large continuous kiln.

Harley Fate, of the J. D. Fate Company, was present and the pace was so fast it is said he was caught sound asleep while standing in the center of the Grunewald lobby.

Edward K. Cormack, of the Wisconsin Lime & Cement Company, Chicago, recently elected president of the National Builders' Supply Association, was greatly in evidence. He not only had an address before the convention, but also was made the guest of honor before the New Orleans Builders' Supply Association.

Fritz Salmen and son, Fred, were the busiest men in New Orleans. They had a big job but went through with it without a misfire. The success of the convention was due greatly to their energy, generosity, hospitality and foresight.

D. V. Purington was up from Ocean Springs and, despite his infirmities, managed to be around the hotel lobby the first few days of the convention, where a sight of him was the signal for an old-time reception.

J. H. Chambers, Lincoln S. Morrison, A. R. Root and E. G. Biechler, of Chambers Bros. Company, had working models of the Chambers machines on exhibition in Parlor Q of the mezzanine floor.

Ben S. Fisher, of the Columbus Brick Company, Union Furnace, Ohio, was one of the truly disappointed benedicts. Mrs. Fisher was in Arizona for her health but Ben expected her to join him at New Orleans.

F. B. Dunn, of the Dunn Wire-Cut-Lug Brick Company, had an able representation. W. T. Blackburn and Frank T. Townsend, of his engineering corps, were on the job.

John P. Goheen, of the Philadelphia office, and J. W. Lazear, of the Chicago Office of the Brown Instrument Company, had an exhibit. Lazear was one of the features of the tango parties held during the week.

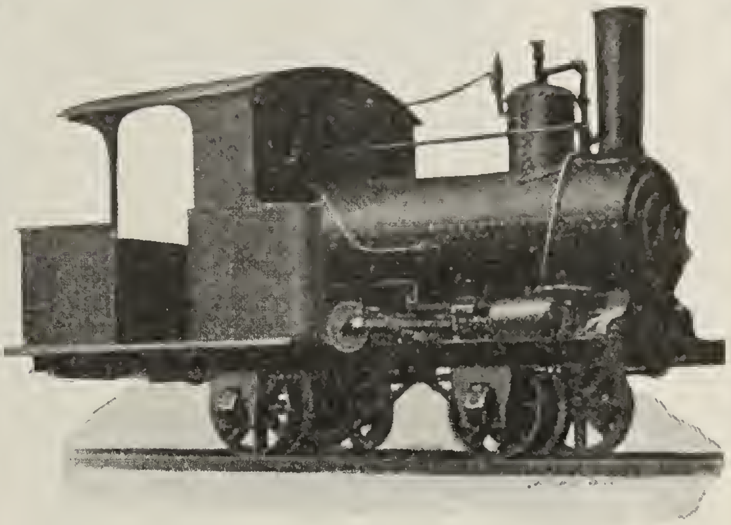
The Chase Foundry & Mfg. Company, of Columbus, Ohio, was represented by S. M. Chase and A. J. Dunn.

Charles L. Sauter, of the North Hampton (Mass.) Brick Company, was one of the far-a-way delegates. Mrs. Sauter accompanied him and, with but one or two exceptions, they traveled the farthest to reach the convention. W. G. Poate, of the Estevan Brick Company, Estevan, Sask., Ont., Canada, has the distinction of having made the longest journey.

Alford Yates, of the Shawmut (Penn.) Paving Brick Company had some pretty glazed ware souvenirs which he gave

DEWEY

First Cost Never Determines Results



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$1,200

F. O. B. Goldsboro, N. C.

Horses and Mules May Cost Less at First, but Feed Bills are Growing Bigger Every Year and the Stock Older. No Economy there.

FOUR DEWEY POINTS

Point 1. It has 40 H. P.
Point 2. It runs on any track —steel or wood.
Point 3. It has chain drive, which makes steep grades easy.
Point 4. Its upkeep is less than horse feed.

Absolute Proofs on Request.

DEWEY BROS.
GOLDSBORO, N. C.

DEWEY

to the paving brick delegates at the close of the convention.

John C. Boss, of Elkhart, not only had an exhibit room on the mezzanine floor, but also was in evidence everywhere in the convention. He is a warm advocate for brick as a material for the Lincoln Highway.

Frank Mahurin, J. F. Aten, Paul Crider and Frank McClellan represented the Arnold-Craeger Company, of New London, Ohio.

Mr. and Mrs. William Hanley, of the Bradford (Penn.) Pressed Brick Company, were one of the couples that really enjoyed themselves.

George H. and Charles F. Clippert of the Geo. H. Clippert Brick Company, Detroit, Mich., were active in the counsels of the association.

A. A. Oldham and G. D. Stoll represented the Bonnot Company, of Canton.

The Main Belting Company was represented by E. M. George, H. Hazell and William M. Taylor.

Will P. Blair and H. H. McDonald were on the job every minute and signed up several new members to the N. P. B. M. A.

C. C. Barr, the Sphinx of the convention, maintained his reputation and said little, listened a great deal and did much when action was necessary.

Harry Flood represented Chisholm, Boyd & White.

The Thew Automatic Shovel Company was represented by D. D. Deeds.

G. S. Brubaker and Chas. Burridge looked after interests of H. Brewer & Co. and had headquarters on the mezzanine floor.

Charles T. Harris was the only representative of the Fiske & Company, the absence of J. Parker B. Fiske being especially regretted.

P. E. Dutcher of the Bucyrus Company, South Milwaukee, was one of the "official" photographers of the convention, vying with Prof. Orton and George Vater for the first honors.

Alex. Snyder, of Portage, La Prairie, Canada, was accompanied by his daughter, Miss Ethel, and after leaving the convention, began an extensive tour of the country.

Joe Fulcher, of the Fulcher Brick Company, Nashville, is one of the samples of the bricklayer-contractor entering into the brick manufacturing end. He not only makes, but contracts and lays what he makes. He has a comfortable profit at the end of each year.

E. S. Tecktonius and Anton Vogt represented the E. C. Tecktonius Company, of Racine, Wis.

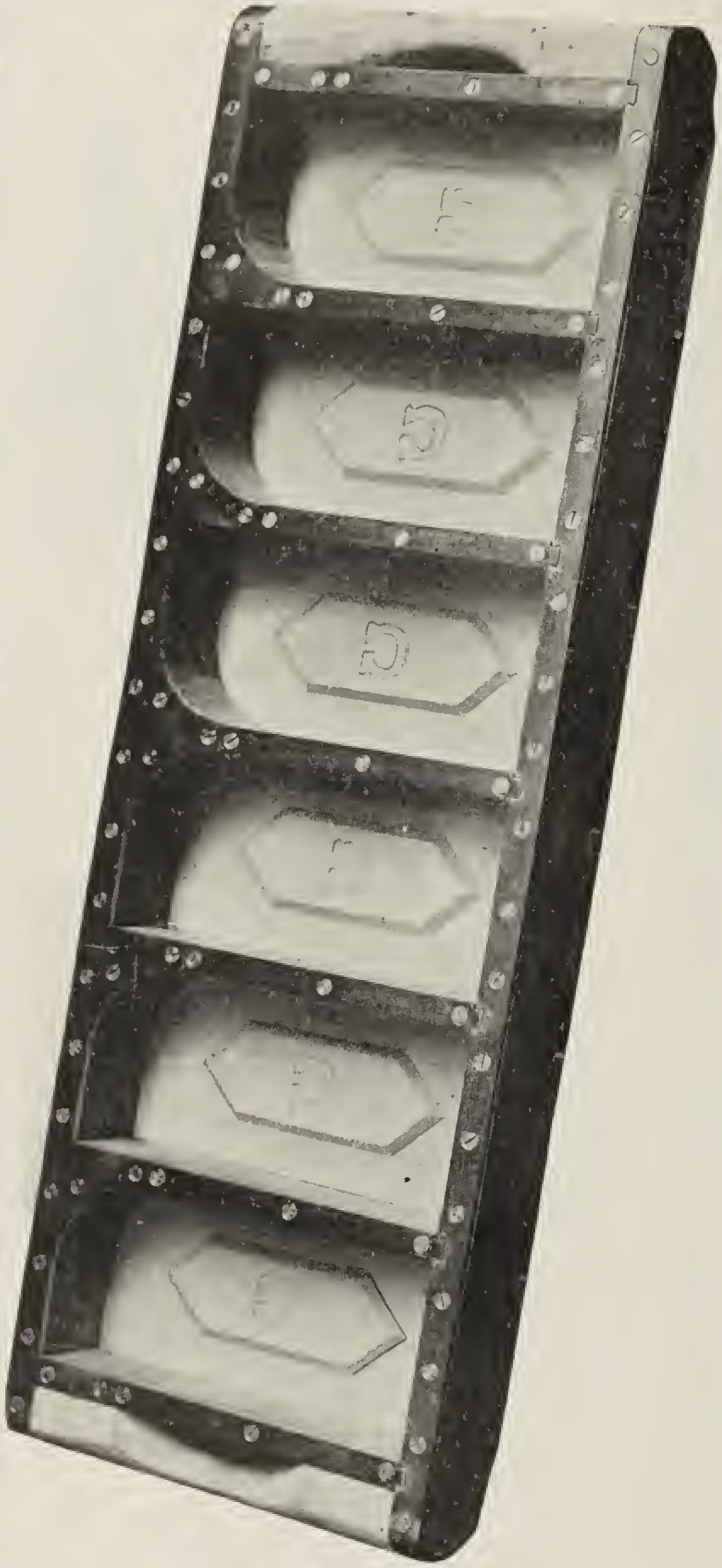
J. W. Hensley, of Indianapolis, displayed the prospectus of a new clay excavation device he has just placed on the market. It looks like "a good thing."

W. C. Kirkpatrick, the Chicago efficiency engineer, convinced a number of clayworkers of the economy of using his gas producer system.

H. S. Hamilton, of the McArthur Ohio Brick Company, wore one of every badge offered him, and Mrs. Hamilton, who accompanied him, said he was making a collection.

Oliver Baird, of the H. C. Baird & Company, Parkhill, Ont., was accompanied by Mrs. Baird, and, in common with

Machine and Hand Brick Moulds
of Every Description



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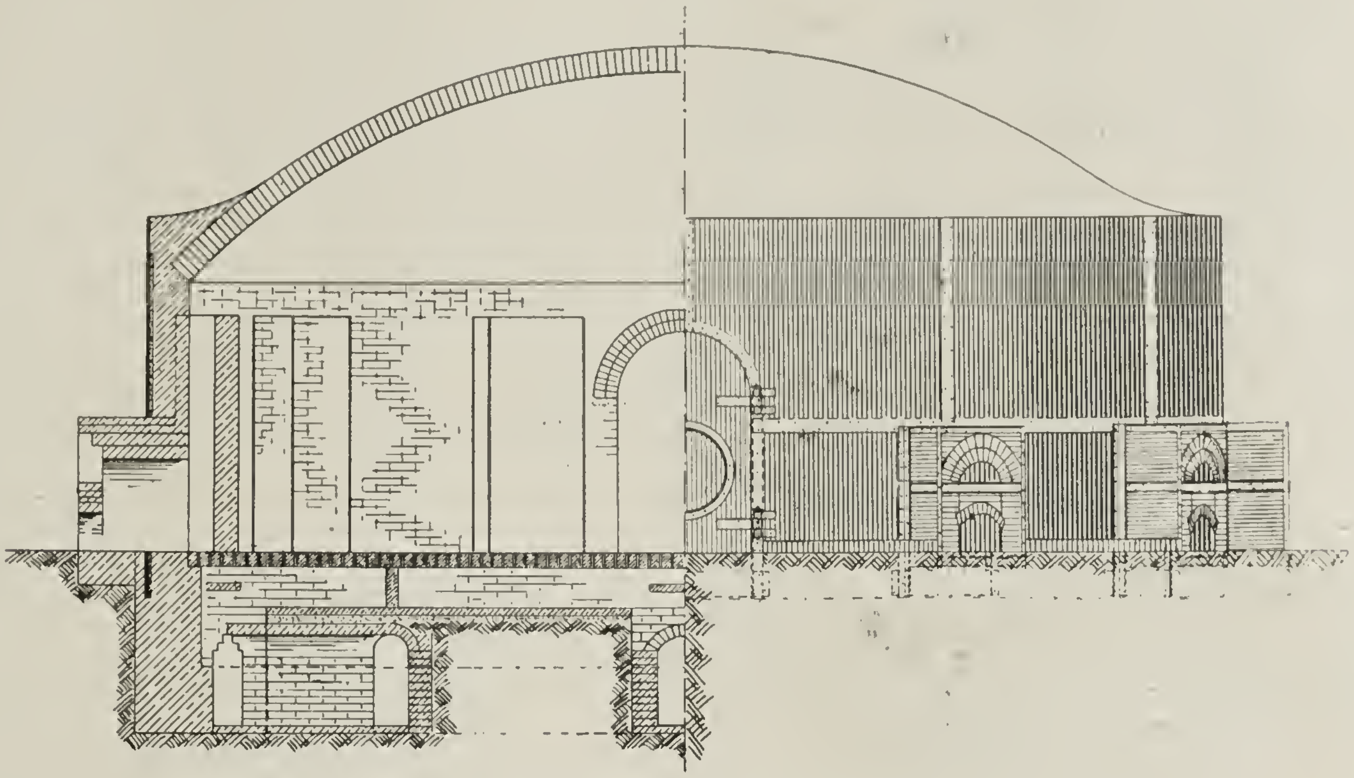
The G. B. Mentz Co.
America's Foremost Mould Makers
Wallkill, N. Y.



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SMITH STEEL SHELL KILN

The Importance of Burning

in Relation to the Other Steps in the Process of Manufacture

Makes Our Steel Encased Kiln All the More Necessary

We Furnish All Materials and Build Complete and Also Burn When Desired

CONTRACTORS FOR

Building Complete Clay Working Plants, Kilns of Our Own or Your Design, Dryers of All Kinds

CORRESPONDENCE INVITED

CLAUDE SMITH COMPANY

For Years Expert Kiln Builders and Burners

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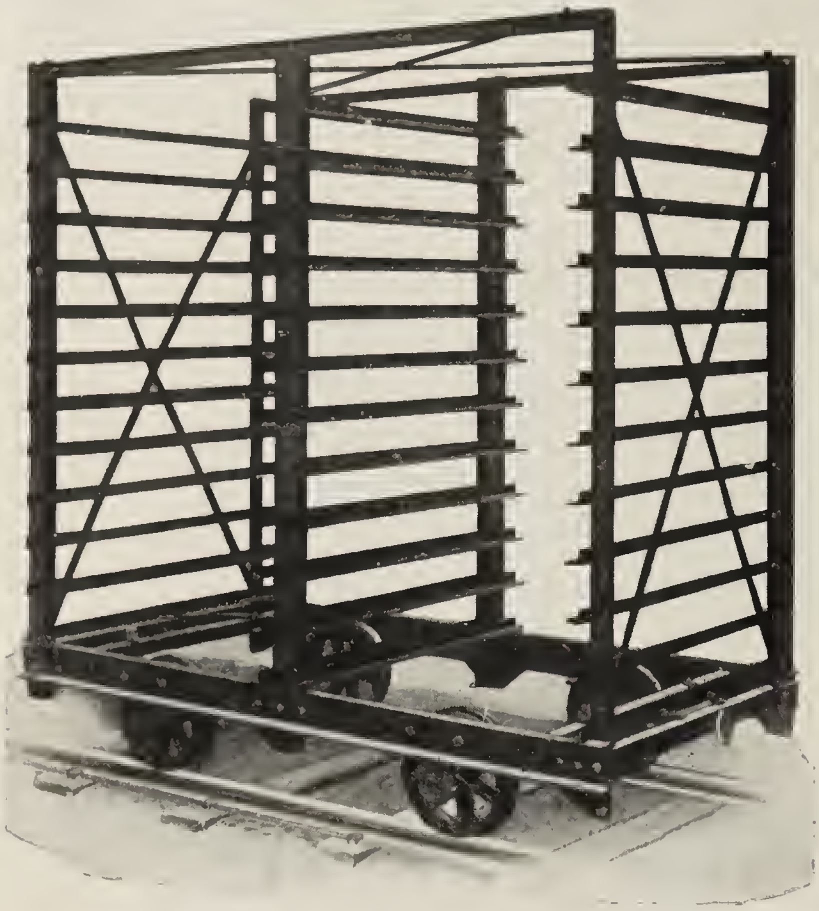


Read what users of the Gerlock Car have to say

Letter No. 1.

MOUNT UNION REFRACTORIES CO.
SILICA and MAGNESIA BRICK.
MOUNT UNION, PENN'A.

Mount Union, Pa., March 25th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We are pleased to advise you of our entire satisfaction with the Steel Dryer Cars which you have furnished us during the past year—150 of these cars were delivered about nine months ago and the 30 additional cars about two months ago—and we are very much pleased with them in every respect.

Yours very truly,
MOUNT UNION REFRACTORIES CO.,
F. D. Halstead,
Secretary and Treasurer.

Letter No. 2.

GENERAL REFRACTORIES COMPANY.
Manufacturers, Dealers and Importers
SILICA, MAGNESIA, CLAY and CHROME BRICK.

BLAIR SILICA BRICK WORKS,
James H. France, General Manager.
Claysburg, Penn'a, January 16th, 1913.

Mr. H. W. Gerlock,
Huntingdon, Penn'a.

Dear Sir: We have been using your Steel Dryer Cars at our plant for the past three years along with two other makes of cars, and it gives us much pleasure to state that we are assuredly of the opinion that your cars in the points of durability, strength of construction and ease of operation, are far superior to any others that we have in use here or have seen in operation at plants which we have visited. We have adopted your car as our standard and will place all future business with you, knowing from past experience that we will receive the best car at all times at the right price.

Yours very truly,
GENERAL REFRACTORIES CO.,
Per E. M. France.

Be Convinced—send us a trial order.

H. W. Gerlock
Huntingdon Pennsylvania

the other Canadian delegates, enjoyed the novel winter sunshine of New Orleans.

Ray Sykes, of the J. D. Fate Company, was in evidence with his medicine chest. Ray is an authority on latest wrinkles in patent medicines as well as brick machinery.

Thomas Hibbins helped Charlie Stevenson represent the Stevenson Co., of Wellsville, Ohio.

The largest single family attending the convention was headed by Henry Kleymeyer, of Henderson, Ky., of the Kleymeyer & Klutey Brick and Tile Works of Henderson and the Standard Brick Company of Evansville, Ind. In his party were: Miss Minnie Kleymeyer of Henderson; Mr. and Mrs. H. C. Kleymeyer of Evansville, and their daughter, Miss Ruth; Mr. and Mrs. Fred Klutey, of Henderson, Mrs. Klutey being a Kleymeyer. They boarded the Chaldean special at Nashville.

J. C. Steele & Sons, of Statesville, N. C., were represented by F. F. and H. O. Steele.

Anthony Ittner missed this convention—one of the few he has failed to attend. His son, Warren, however, was on hand and took a prominent part in the program. Mr. Ittner was accompanied by Mrs. Ittner and Miss Ittner, a niece.

D. L. Wadsworth, of the Lakewood Engineering Company, Cleveland, Ohio, received the distinction of being prize escort of the convention, and he assiduously plied his duties morning, noon and night.

Roy Bennett, representing the Wellington Machine Company, was too busy looking after prospects to show up around the convention hall only occasionally. He managed, however, to get into the machinery mens' convention long enough to be elected secretary for 1914.

F. M. Brown, of the Central Iron Works, got in early and left late.

Louis D. Binyon and Jim Hogan, of the S. S. Kimbell Brick Company, Chicago, commonly referred to as the brick-dust twins, disappeared soon after their arrival in New Orleans and did not show up around headquarters until adjournment.

F. B. Reed represented the Clearfield (Penn.) Machine Shops.

F. K. Borden, Jr., and Chas. A. Lano, of the Borden Brick & Tile Company, Goldsboro, N. C., were among the Southern delegates.

George Walter of Chatsworth, Ill., was "among those present."

The Marion Steam Shovel Company was represented by J. G. Ralston.

E. M. Freese & Company was represented by B. E. Place, A. J. Freese and G. R. Hess.

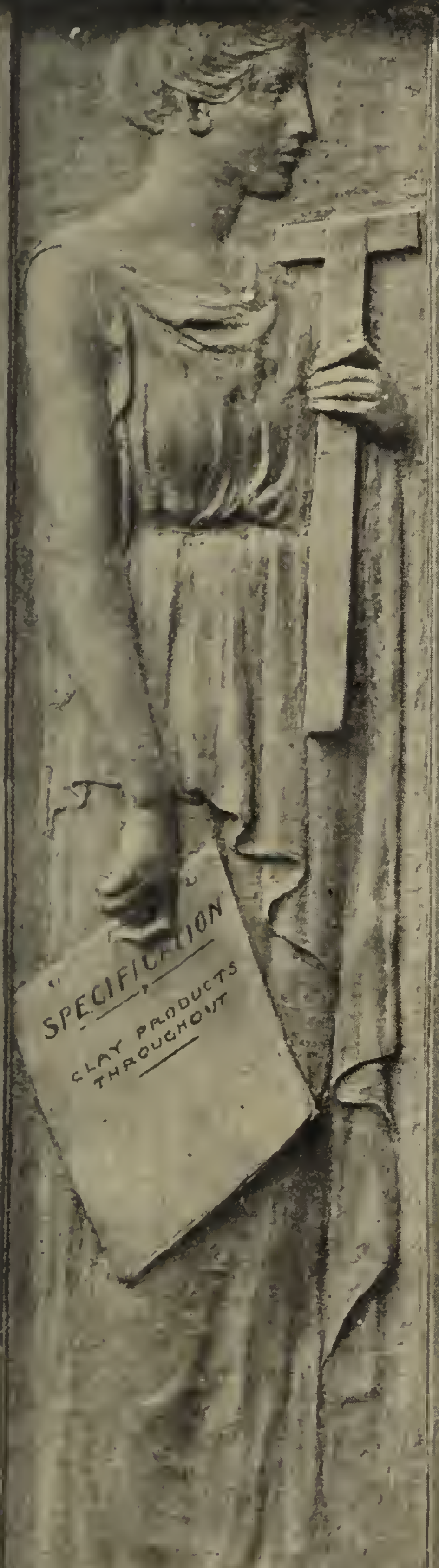
George W. Swanson, of the Northwestern Fireproofing Company, Minneapolis, Minn., was one of the real live wires on the floor.

Prof. A. V. Bleininger, of the United States Bureau of Standards, hurried from the meeting of the American Ceramic Society, at Wheeling, W. Va., and was one of the "lions of the week."

President J. W. Moulding, of the American Face Brick Manufacturer's Association, was a late arrival. There was no session of this association during the week, but informal conferences were held.

IN THIS NUMBER: GOVERNOR OF NEW YORK INDORSES BRICK FOR STATE HIGHWAYS

BRICK and CLAY RECORD



EDWARD K. CORMACK

PRES. NATIONAL BUILDERS' SUPPLY ASSOCIATION

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CHICAGO, APRIL 7, 1914

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PAULDING

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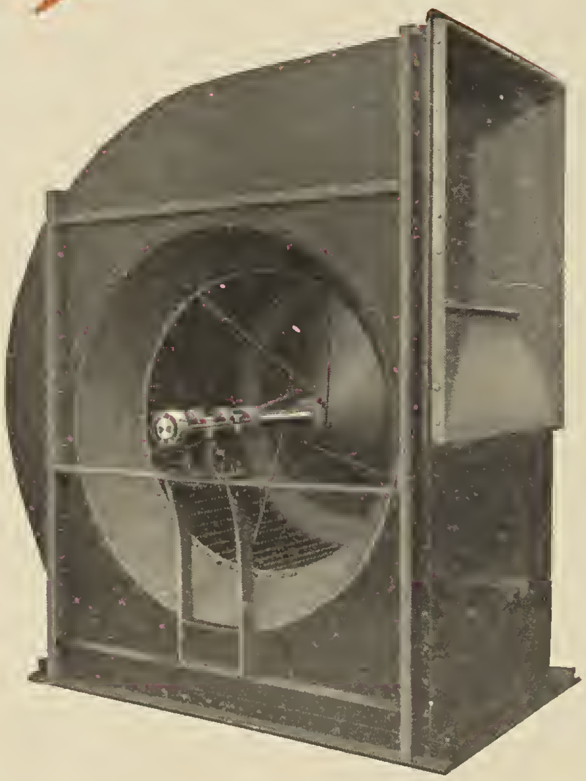
"Brick and Clay Record" Has Double the Paid Circulation of Any Other Clay Journal Published

"Sirocco"

TRADE MARK



Multi-Blade Waste Heat Fans

The backbone of any air handling system **is the fan**—hence the **economy** of any air handling system depends upon the **efficiency of the fan.**

"Sirocco" Multi-Blade Fans will handle **more air** consuming **less power** than ordinary steel plate fans **twice the diameter.**

The heat from the Cooling Brick is called **Waste Heat** only when it is **wasted.**

By employing a "Sirocco" Waste Heat System that same heat is **saved** and made to do a duty which otherwise would cost **real money.**

It costs a lot of money to generate enough heat to burn a kiln of brick, to cool it, the heat must go somewhere—**why not into your dryers? Why not in the most economical way?**—Through "Sirocco" Waste Heat Fans.

Our Engineering Department will gladly co-operate with you in the selection of the proper equipment to economically dry your brick by means of reclaimed heat

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DETROIT, MICHIGAN, U.S.A

Address home office or nearest branch

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Philadelphia, Hale Bldg.
Pittsburg, Empire Bldg.
Chicago, Marquette Bldg.
Indianapolis, Merchants National Bank Bldg.
St. Louis, Title Guarantee Bldg.
Atlanta, Empire Bldg.
Minneapolis, Plymouth Bldg.
Kansas City, R. A. Long Bldg.
San Francisco, Rialto Bldg.
Los Angeles, Central Bldg.
Seattle, Central Bldg.
Boston, 120 Milk St.

Canadian Sirocco Co., Ltd., Windsor, Ont., Manufacturers for Canada

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

IN the news columns of this magazine there is an abstract from a special message that Governor Glynn, of New York, delivered March 23 to the State Legislature. This message was on the subject of the state highways and the Chief Executive of the Empire State declared that to consider longer the use of macadam or any paving material other than vitrified paving block was POOR business SENSE.

In as strong terms as any paving block manufacturer ever used to urge his product upon the people of the Nation, Governor Glynn told the lawmakers that vitrified block was the ONLY material to use and the most ECONOMICAL, and he proceeded with the SAME facts and figures that clayworkers have had at their fingers' tips for many years to PROVE his point.

THE Man playing in the Great Game of Running a Clay Plant, who halted on Third Base to Congratulate Himself, Failed to make a Home Run Score

Turn to the news pages, you clayworkers, and read the message that the Empire State's Governor has given to his people.

Read EVERY line of it and then peruse the editorial comment from New York's great daily papers INDORSING the idea and put on your THINKING cap.

Governor Glynn has placed in your hands a POWERFUL weapon to use against the so-called permanent paving material.

UNSOLICITED, he has given vitrified paving brick the GREATEST OPPORTUNITY it ever has had to reach the ATTENTION of the THINKING and UN-thinking classes.

What HAVE you done with this message?

What ARE you going to do with it?

Have you taken a copy of it, together with the comment of New York's big papers and the papers of the smaller cities, to the editor of the newspaper in YOUR OWN city?

Have you SUGGESTED to YOUR editor that if a GOVERNOR of the EMPIRE state of the Nation believes it is NECESSARY to write a SPECIAL message to his legislature and point out the enormous WASTE of the PUBLIC'S money in flirting with road construction by using a MAKE-BELIEVE material instead of a REAL material that his action is worth your editor's attention?

Have you told YOUR editor that if Governor Glynn has CONVINCED himself that MACADAM roads cost in construction and maintenance for twenty years more than $36,000 per mile, while vitrified paving block costs only $26,000, that it is WORTH YOUR editor's attention and that it is WORTH his while to take up the cudgel for the TAXPAYERS of HIS county and HIS state?

Governor Glynn has not gone off HALF-cocked. He has presented ACTUAL figures.

And there is no guesswork with him.

Listen to this extract from his message:

"An idea of the importance of the economy I propose may be gained from the fact that the total saving in 7,300 miles of road yet to be constructed would amount to $146,000,000 in the twenty years after their completion, or more than the TOTAL cost of constructing our ENTIRE system of highways."

Can you imagine a BETTER argument for any BRICK-manufacturer to use?

How is that—convicts?

Well, suppose Governor Glynn HAS advocated the use of his state CONVICTS and the state's MONEY to manufacture paving block with the idea of still further reducing the cost of his brick highways?

WHAT do you WANT for NOTHING?

The Editor's Corner

Has he not given you a tremendously BIG indorsement without a cent of charge?

Has he not given your product the BEST sort of indorsement unsolicited?

Do not expect to have EVERYTHING YOUR way.

You clayworkers are TOO hard to satisfy.

Be CONTENT with what you have BEFORE you—let the other things take care of themselves later.

Besides, if you use a little COMMON sense you will figure out that even if New York DOES go into the MANUFACTURE of paving block it will be a mere DROP in the bucket!

How many convicts are there in the New York state prisons?

How many of these are available or would be available for manufacturing brick?

A great proportion of these are already engaged in some sort of work, are they not?

How many will be left to make brick?

Is it not plausible to say that if the State brick plant is going to turn out ALL the block used in the rest of the highway system it will have to get busy first to MAKE MORE CONVICTS?

Do not let the convict angle WORRY you.

THAT is a problem that MAY or may NOT come up later.

Let us cross THAT bridge when we COME to it.

What we have before us NOW is Governor Glynn's message.

What have you done with it and what ARE you going to do with it?

Here is a suggestion:

Suppose you take the news section of this magazine containing the excerpts from the Governor's message and the editorial comment accompanying the same, and clip these from the mass of comment made by this magazine, prepared by this magazine to show you what has been done.

Suppose you take these clippings and go to YOUR Mayor and YOUR other city officials and to YOUR County officials and to YOUR State representatives and to YOUR congressman and show them to these officials.

Suppose you ask them what THEY think of Governor Glynn's message and HIS statement as to the ECONOMY of road construction.

Suppose you get a WRITTEN statement from these officials as to THEIR attitude, and you take these statements to the editor or editors of YOUR local newspapers.

Or, if you believe it more advisable, suppose you go to YOUR editors and tell them what THESE officials have said to you and suggest that they go and get interviews with them on this subject and PRINT what they SAY.

Suppose you STIR up an INTEREST and an ENTHUSIASM for vitrified brick in this way.

Suppose you awaken the TAXPAYERS to the TRUE facts about road construction by letting them KNOW what a GOVERNOR of a GREAT state thinks about paving materials and paving construction.

Would it not be a most excellent way to get some FREE publicity for paving block?

You are not a paving brick manufacturer?

What DIFFERENCE does that make?

You are a CLAYWORKER are you not?

And clayworkers WANT to see BURNED CLAY forge AHEAD, do they not, whether the particular product THEY are MAKING is the ONE that is being boosted or not?

A well-built brick highway leading into YOUR city, built as it is of PERMANENT material and proving the LASTING qualities of BURNED clay is a GOOD BOOST for ANY sort of burned clay ware, is it not?

It is SOMETHING YOU can POINT to with pride, is it not?

It is SOMETHING you can USE as an ARGUMENT to PROVE that YOUR product, being of the SAME material, is the PROPER material to use where REAL ECONOMY and REAL PERMANENCY are desired, is it not?

Forget, then, for the moment, your IMMEDIATE selfish self.

Submerge your DESIRE to do NOTHING unless you HEAR THE JINGLE OF THE ALMIGHTY DOLLAR before you ACT.

YOUR GAIN WILL come later and MANY fold.

"Be a BOOSTER—it Does Not Hurt," as the Chaldeans would say.

Get busy BOOSTING TODAY. Governor Glynn has given you some most VALUABLE material to boost WITH.

USE it.

Trade Papers—Their Appeal and Their Power

By Elbert Hubbard

FRA ELBERTUS, THE ROYCROFTER FROM EAST AURORA, PHILOSOPHIZES FOR THE BENEFIT OF "BRICK AND CLAY RECORD" READERS .·. .·. .·.

THE BRAIN is an organ and its function is to think.

And our sanity is determined by the mental voltage we carry.

So long as we are live wires, so long as we transmit power, radiate love, give out sympathetic warmth, think individually and act collectively, we establish our right to live.

But a lazy man, whether his sluggishness and slothfulness is mental or physical, is as useless as a dead man—and takes up more room.

The world is made up of two classes—the routiners and the pioneers.

The former class are the smug, selfsatisfied folks who carry caution to excess. "Form A" and "Schedule B; Class III" is their rubric; and red tape is their phalactery.

They are the cause of inefficient efforts to eliminate inefficiency. That is to say, they are a drag upon the wheels of progress.

To do certain things in a certain way is eminently proper, but we now want quicker methods, more serviceable systems. We want things "right now." And the concern that gives them to us—right off the bakestone—is the one that gets our business.

We move with the times—or get left!

Shakespeare said something about the seven ages of man. But man has only five stages,—the baby-buggy stage, the rig stage, the cycle stage, the auto stage and the hearse, but while he is not responsible for his first stage he cannot prolong his last one.

Even in religion we see signs of the routiners becoming routed. We now go cross-lots to Heaven and Science, the pioneer, is leading the way.

Whilst perhaps it is true that the American business man is in too big a hurry to attend to detail, and while it may also be true that we may leave our margins too big and untrimmed, still there is no useful purpose served in a too slavish allegiance to moth-eaten, rust-worn rules and regulations.

When a man satisfies himself that his nameplate—John Jones—Merchant—is all that is necessary to get business, ("for everybody knows that the Jones' have been in the business five generations") he is in the chrysalis state, he is in his cocoon. Also he is in his coffin, for he is a dead one. Routine killed him. He lacked imagination and the blessing of anticipation.

Imagination and anticipation is the double cylinder, expansion engine of humanity.

The pioneer is blessed with a full equipment and his life speaks of prescience, strength of character and courage. His anticipation is a sort of prophetic vision, a kind of instinct.

The power of a seeing mind is tremendous—and it belongs to the man who exercises his gray matter by ceaseless inquiry and search.

The pioneers are the anticipators, the routiners are red-tapers.

Our huge liners as they cross the ocean, ever have a man in the "crows nest." He's on the look out. And upon his wideawake, alert sight, depends much of the safety of the ship, cargo, and human freight.

To him every object that enters his vision is full of meaning and is duly noted, reported and recorded by the officers.

The simile seems to me to be especially happy as applied to the editorial department of Trade and Class Papers, of which we have such a splendid representation in this country.

Nowhere in journalism is there a finer array of talent, than is to be found in the columns of these informative and trade reflecting papers.

There is absent that flippancy and flummery of the cheap newspaper.

Instead the Trade Papers are full of facts that are throbbing with pulsing life and vigor. There are to be read articles that have the saving literary savor, the salt of commonsense, and the tabasco of criticism.

The Trade Paper is the happy medium between the "excrutiatingly funny" comic section of our newspapers and those magazines for mummies that are wrapped in a most humorous sadness.

The Trade Paper treats of its subjects in a manner that is exhaustive but not exhausting, comprehensive yet concise.

There is more in the power of timely suggestion than most of us dream of. And the value of these papers to many people is not only in the actual articles written, but because of the cycle of thought it occasions—the mind images it gives—the breadth of life it breathes into the crude creations of their imagination.

The Trade Paper crystallizes thought for us. It presents to us mental pabulum in cubes and tablets.

No longer do we need search laboriously for the meat of the subject, it is right there, served in plenty and garnished with truth and accuracy.

The editorial department is not made up of Gratianos—whose reasons were like two grains of wheat in a bushel of chaff, and when found not worth the search.

The Trade Paper is a true source of inspiration and power, and as an antidote for declining business, as a tonic for flagging zeal, for ennui or laissez faire, it is worth "a guinea a copy."

Inspiration without preparation is useless.

But the preparation must be clear and defined or the creation will lack dignity, purpose and service.

And inspiration comes only from the beautiful. Love is a by-product of Art; and inspiration is a by-product of work that is positive and specific.

The Trade Paper caters to the specific needs of its subscribers, and in so doing, entertains and demonstrates the beneficence of co-operation.

Co-operation is the fulcrum of future success—social, commercial, national and international.

The Trade Papers believe in this companionship, this helpfulness and mutuality. And in their well-edited, well-written columns, is to be found the incentive to vigorous effort, unselfishness and success.

For the dealer, worker, businessman—the Trade Papers are invaluable. They are as full of ideas as an arsenal full of ammunition; as full of food as an egg is full of meat.

Controlling the policy and filling the pages of these class publications, are men of tried integrity and specialized ability.

And so we look to the Trade Paper with eager confidence, and have the supreme satisfaction of knowing that we shall be able to find there one of our sources of power—knowledge of the industry for which we strive.

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How to Care for Engine and Boiler

Many of the leaks in a clay plant may be traced to the power plant. Few give this important part of the factory proper consideration. W. W. Phillips, one of the practical contributors to this magazine, has a most valuable article on this subject and it will be printed in the April 21 number.

Edward K. Cormack*—Born Leader and Executive

Man rules from the cradle to the grave, or is ruled. Seldom is he made. "As the twig is bent so does the tree grow." Dominant characters are those that have been dominant from childhood to maturity. There may be periods when these fail to rule, but as "water seeks its level," so do men, and the season of servility is short.

A Sketch—By John Grayar

SOME men are born executives. From the cradle up they begin to "boss," and that spirit is manifest all through childhood. The lad usually is found captain of his baseball team—general of the "army," or leader of the "desperate band of outlaws or Injun killers." When the child gets out of his dime novel period and begins to take a real interest in his school affairs, he is usually found president of the debating society, chairman on the committee of entertainment of the moonlight picnic association and class leader in high school. When grown up and in the business world he naturally takes to leadership.

Edward K. Cormack is one of these "born leaders." He passed through the several stages mentioned and when he entered the business world he took to "bossing the job" like a duck does to water.

Mr. Cormack is president of the National Builders' Supply Association; chairman of the Building Supplies Division of the Chicago Association of Commerce, and vice-president of the Wisconsin Lime & Cement Co., of Chicago—the latter position being the one that "brings in the bacon," to use the vernacular of the street.

If Mr. Cormack had a little more time, undoubtedly he would annex a few other positions—which is unfortunate for the organizations that are running without his help, for Cormack really does things wherever he goes.

Mr. Cormack has been identified with the Wisconsin Lime & Cement Co. practically ever since its origin.

This concern is one of the largest dealers in builders' supplies in the country—handling practically everything under that head, including clay products, a not inconsequential part of the business.

The clay products' end of the business is conducted personally by Mr. Cormack and it is his activity in this field that has identified him so largely with everything that tends to promote burned clay.

It has been under his guidance and care that this department of the business has reached the position of importance held by it today in the Chicago field, it being declared to be a model of efficiency.

While the affairs of his company have been such as to fully justify any lack of inactivity on his part elsewhere, the fact remains that Cormack is too full of a progressive and co-operative spirit to sit by idly and watch the other fellow forge ahead, and it was mainly through his untiring efforts that the Paving Brick Publicity Bureau of Chicago was organized a few years ago for the purpose of imparting to the taxpayers of Chicago and vicinity the merits of vitrified brick as a material for paving their highways, and the success of this organization is a credit to Mr. Cormack's good judgment.

His co-operative spirit, however, extended even beyond this, and his activity in matters connected with the National Builders' Supply Association lead to his election at their recent convention, as the presiding officer of that organization for the coming year. No more wiser selection could have been made, and he enters upon his new duties with the combined good wishes and unanimous support of all the dealers in this Association, who feel that they have at last found the lost oar.

**Portrait on Cover*

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Governor Glynn, New York's Business-man-Executive as He Looks at His Desk.

Governor Urges New York to Build Brick Roads

Shows Saving of $146,000,000 in 20 Years

> *An idea of the importance of the economy I propose (use of brick) may be gained from the fact that the total saving in the 7,300 miles of road yet to be constructed would amount to $146,000,000 in the twenty years after the completion, or more than the TOTAL cost of constructing the ENTIRE system of highways.*—Gov. Glynn in his message to the Legislature.

DECLARING that a saving of $146,000,000 can be had in the construction and maintenance of New York's state highways by the use of vitrified paving block and by the dropping of macadam and all other forms of paving material, Governor Glynn gave burned clay products a boost in a special message to his Legislature that many thousands of dollars worth of printers' ink could not have purchased in the newspapers of the country.

The message was transmitted to the Legislature in session at Albany on the night of March 24. The great daily newspapers of New York City the next morning carried editorial indorsements of the suggestion, as did practically every one of the papers throughout the State, in addition to carrying the full text of the message. Three days later, or March 27, the Legislature took action on the message and passed a bill embodying the suggestions made by Governor Glynn and appropriated $50,000 to permit him to work out his plan.

By this action the State Assembly has gone on record as

Gov. Glynn's Figures on Brick Economy

There are only two materials that should be considered in replacing the macadam—these are vitrified paving block and concrete.

- Concrete has not been tried long enough to justify any positive conclusion.
- Vitrified paving block has been used largely in every city in the country and has been down twenty-five years and is still giving satisfaction even on streets that have been subjected to the hardest traffic tests.
- Even if New York were compelled to pay $25,000 per mile vitrified paving block it would be economy.
- The annual cost of maintaining the brick roads has been remarkably low, ranging from practically nothing to $10 to $50 per mile.
- The total expenditures for twenty years on a macadam road, at the present cost, will amount to $36,000 per mile.
- The total expenditure for twenty years on a vitrified paving block road, at the present costs, will amount to $26,000 per mile, if we allow $25,000 per mile for construction and $50 per year for maintenance.
- On the outside figures given the difference in cost for twenty years shows a balance of $10,000 per mile in favor of vitrified paving block.

The Enormous Cost of Macadam

New York State has voted $100,000,000 for the construction of its highways.

- It will cost New York an additional $30,000,000, to complete the present system, if the roads built in the future costs as much as they have in the past.
- It will cost annually $12,000,000, additionally, for maintenance of the present macadam roads on the 12,000 miles already constructed.
- It will cost New York $130,000,000 for maintenance ten years from completion of the present macadam roads and the State will have little to show for an expenditure of $350,000,000.
- It will have cost the taxpayers at least $20,000,000 each year twenty years from the completion of the macadam roads if they are to be kept in proper condition.
- It will cost the taxpayers every year $12,000,000 for maintenance.
- It will cost the taxpayer $5,000,000 in interest charges on their bonds.
- It will cost the taxpayer $25,000,000 each year as a contribution to the sinking fund to take up the bonds as they mature.
- It will cost additional millions to rebuild the roads on which the taxpayers have been lavishing these tremendous sums.

preferring vitrified brick and that material is indorsed for all highways in future construction work.

While Governor Glynn indorsed the use of vitrified brick unqualifiedly and urged that it was the only material that would give the taxpayers full value and the only material that was truly economical, he also advocated the erection of a State brick plant which would manufacture vitrified block, using prison labor, and thus, as he averred, save the taxpayers still further.

The metropolitan daily newspapers of New York City are somewhat divided on this suggestion. While all agree with Governor Glynn that brick is the only sensible material, some question the practicability or the advisability of establishing a State brick plant or of using convict labor.

Governor Glynn is very positive in his utterances favoring vitrified paving block, and in urging immediate action—which, by the way, he received.

The State is now engaged in constructing 12,000 miles of State highways, of which 4,700 miles have been built, chiefly of macadam. One hundred million dollars has been appropriated by the Legislature to further this project.

Governor Glynn points out that the roads are likely to cost $30,000,000 in addition to the $100,000,000.

"And these roads," he says, speaking of macadam, "will be worn out forty years before they are paid for.

Governor Glynn does not mince words in handling his subject. After showing the failure of macadam as a material and citing its great cost, because of the necessity for continued repairs and re-surfacing, he says:

> **Every year the taxpayers of New York will be compelled to pay $12,000,000 for maintenance.**
>
> **Every year they will be forced to pay $5,000,000 in interest charges on their bonds.**
>
> **Every year they will be compelled to contribute $2,500,000 to the sinking fund to take up these bonds when they mature.**
>
> **And every year they will be required to pay additional millions to rebuild part of the roads on which they are lavishing these tremendous sums.**

While the cost of a mile of macadam road, including the construction and maintenance for twenty years, is $36,000, the Governor says that the corresponding cost of a brick road for twenty years, including the initial cost, would be only $26,000, leaving a balance in favor of the brick road of $10,000, with the advantage that the taxpayers would still have a permanent road that would last indefinitely, while, if macadam is used it would have to be replaced ever so often.

Governor Glynn's message, carrying with it as it does, an unqualified and unsolicited indorsement of vitrified brick, has stirred up the clayworker in every section of the state and the opportunity for a still greater publicity for burned clay is being seized in a most creditable manner.

The National Paving Brick Manufacturers' Association was one of the first organizations to take up the message and the action of the Legislature. An address to the general public was prepared immediately and sent out to all the papers of the country. This article epitomizes the message and carries with it additional argument for vitrified brick.

The Eastern Paving Brick Manufacturers' Association, the Western Paving Brick Manufacturers' Association and other organizations of a similar nature took up the cudgel early and got their publicity departments working overtime.

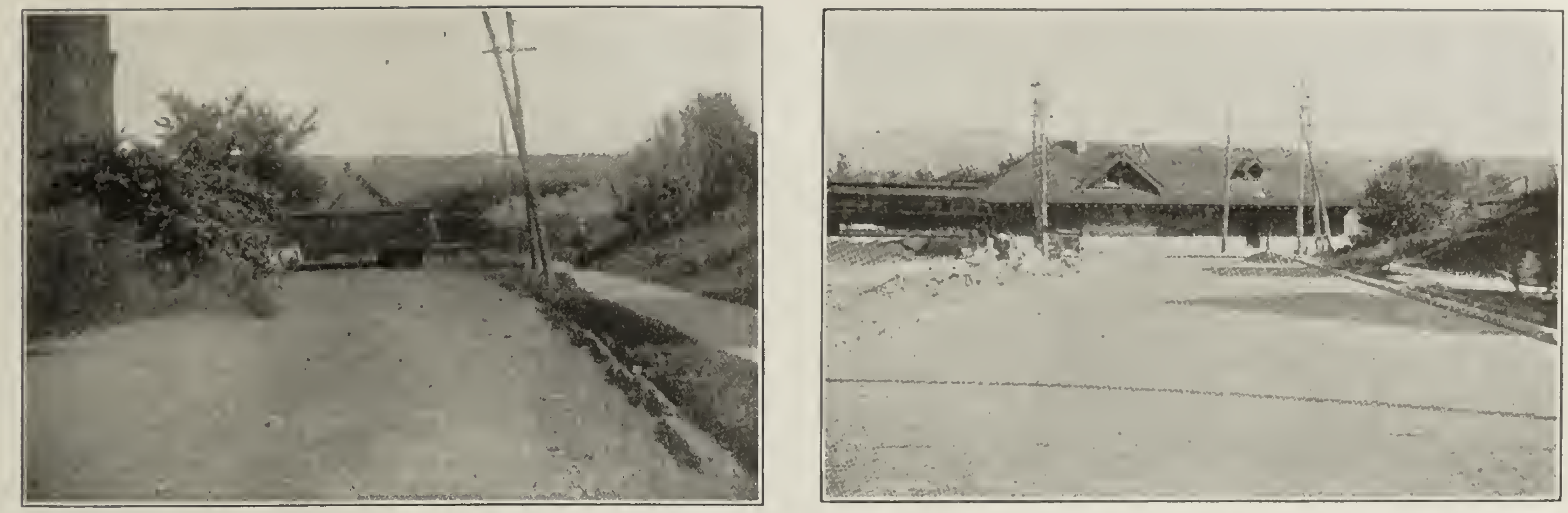
The condition of New York's roads have been the subject of newspaper comment and public addresses for some time. The liberal appropriation of $100,000,000 for permanent highways was expected to solve the problem. Through a false idea of economy, however, most of the main highways so far constructed were built of macadam. A few hundred miles were constructed of vitrified brick and a few miles of concrete. The macadam has proven its impracticability. Concrete has crumbled under the heavy pounding it got and brick alone stood the test.

Governor Glynn, who is seeking to make a business man's record during his brief administration, realized the impor-

How New York Wastes Its Money

The present macadam roads in New York will wear out forty years before they are paid for.

- It costs, under the present system, $20,000,000 to $30,000,000 per year for maintenance.
- It costs New York $12,000 per mile to build macadam roads which do not last ten years.
- It costs $1,000 per mile per year to maintain and resurface macadam roads in New York.
- It costs New York $6,000 per mile to rebuild macadam road at the end of ten years at which time they are worn out.



These pictures are of Younglove Avenue, from Imperial Avenue east, in Cohoes, N. Y. The one on the left was taken June, 1903, and shows the macadam used at that time. The picture on the right was at the same place, October, 1904, the street having been paved with vitrified brick. Although more than ten years have elapsed the brick pavement is still giving great satisfaction to the taxpayers.

tance of the situation and made a special study of it. His message to the Legislature followed.

The message occupied about one column and a half of space in the newspapers and bristled with strong arguments for the position the chief executive took. It follows:

New York is engaged in building 12,000 miles of roads which will wear out forty years before they are paid for.

Unless the State makes a radical change in the type of road it builds, it will cost from $20,000,000 to $30,000,000 yearly to maintain and rebuild New York's highways when the present system is completed.

This is the real highway problem.

It costs New York approximately $12,000 to build a mile of macadam road, which under present traffic conditions will not last more than ten years. It costs a thousand dollars a year to maintain and resurface these macadam roads. And, at the end of ten years when these roads are worn out it will cost at least $6,000 a mile to rebuild them.

One hundred million dollars has been voted for the construction of New York's highways. If the roads we build in the future cost as much as those we have been building in the past, it will require an additional $30,000,000 to complete the proposed system. On New York's 12,000 miles of macadam roads the annual cost of maintenance will be $12,000,000, the total cost of the roads will be $130,000,000 and at the end of ten years from the date of completion the State will have little to show for an expenditure of $250,000,000.

In the twenty years thereafter the tax for highways will be at least $20,000,000 each year, if our roads are to be kept in proper condition.

Every year the taxpayers of New York will be compelled to pay $12,000,000 for maintenance. Every year they will be forced to pay $5,000,000 in interest charges on their bonds. Every year they will be compelled to contribute $2,500,000 to the Sinking Fund to take up these bonds when they mature. And every year they will be required to pay additional millions to rebuild part of the roads on which they are lavishing these tremendous sums.

In other words, New York must either change its road policy or prepare to levy a perpetual and yearly road tax of $2 on every man, woman and child within its borders.

When the State planned its highway system it did so without knowledge of the motor traffic that these roads would later be asked to withstand.

Following the lead of Massachusetts it adopted a system of macadam roads eminently fitted to light horse traffic but utterly unsuited to the wear and tear of the heavy automobile. The result has been that an ever increasing motor traffic is pounding the roads of New York apart almost as fast as they can be built. What the State has saved in the initial cost of its roads is more than lost in the great and increasing cost of maintenance.

New York's experience has simply been that of adjoining states but upon a larger scale. New York pays no more than Massachusetts does for the same kind of macadam road. New York's macadam roads last as long as roads in Massachusetts that are subjected to the same degree of traffic. Last year Massachusetts spent more than $800 a mile for repairing and resurfacing and many older roads needed rebuilding at a cost of from $6,000 to $10,000 a mile.

New Jersey builds its roads at an approximate cost of $10,000 a mile, but it is fortunate in the possession of domestic road material which other States must import. For repairs and resurfacing New Jersey spends more than $1,500 a mile.

"I do not believe that when the taxpayers of New York voted $100,000,000 for a system of good roads, they realized that they would be compelled to spend more than $20,000,000 a year to perpetuate these roads. And in fairness to these taxpayers and to the various governmental activities to which the State's money ought to be devoted, those in authority must devise some way to reduce the cost of keeping New York's highways in repair.

Instead of roads that wear out in ten years, New York must build roads that will last from twenty to thirty years. Instead of building highways that cost $1,000 a year to maintain, New York must construct roads that can be maintained at a moderate annual cost. Instead of putting down roads that cannot withstand the traffic that passes over them the State must find some way to build roads that are fitted for present conditions.

Two types of road with which this country has had experience answer these requirements. One is the concrete road, the other the brick road with the concrete foundation.

In the past New York has been slow to adopt concrete or brick roads because of their high initial cost. Where a macadam road costs from $10,000 to $13,000 a mile to build, a concrete road costs from $12,000 to $16,000 a mile, and a brick road costs from $20,000 to $25,000.

Unfortunately the experience of the modern road builder with concrete has been rather limited. Michigan has built concrete roads in one county and thus far has obtained very satisfactory results, but these roads have not been down long enough to justify any positive conclusion as to their permanence and economy. Brick roads, however, have been laid in hundreds of cities and have everywhere demonstrated their durability. Brick roads have been down for twenty-five years and have admirably stood the test of the hardest kind of traffic. The annual cost of maintaining these brick roads has been remarkably low, ranging from practically nothing to from ten to fifty dollars per mile.

Even if New York were compelled to pay $25,000 a mile for brick roads it would be economy to build such roads instead of macadam roads in all places where the State's highways are subjected to heavy automobile traffic.

The total expenditures for twenty years on a macadam road amount to $36,000. This includes $12,000 for building, $18,000 for maintenance, and $6,000 for rebuilding at the end of the first ten years.

The total expenditures for twenty years on a vitrified brick road amount to $26,000 if we allow a maximum of $25,000 for building and $50 a year for maintenance.

On these outside figures the difference in cost for twenty years between the macadam and brick roads shows a balance of $10,000 in favor of the brick road even if New York pays the market price for brick.

I believe, however, that by judicious legislative action it is possible for New York to build brick roads for a little more than it now costs to build macadam roads.

The greatest item in the construction of brick roads is the cost of the vitrified brick. If the State can secure this brick cheaply its road problem will be solved. In a brick road costing $25,000 a mile the brick itself costs $12,000.

New York can make its own brick by utilizing the splendid deposits of shale which are found in profusion all through the southern half of the State and by using prison labor to turn this natural resource into paving blocks.

I respectfully suggest to the Legislature that it amend the prison law so that the State's prisoners may be employed in the manufacture of brick for the State's highways.

We have the material for brick highways at hand. We have labor waiting within our prisons to transform this material into the finished product. Semingly all that is neded is the wisdom to turn these facts to advantage.

I urge the Legislature to appropriate, at once, enough money to try out the plan I have outlined.

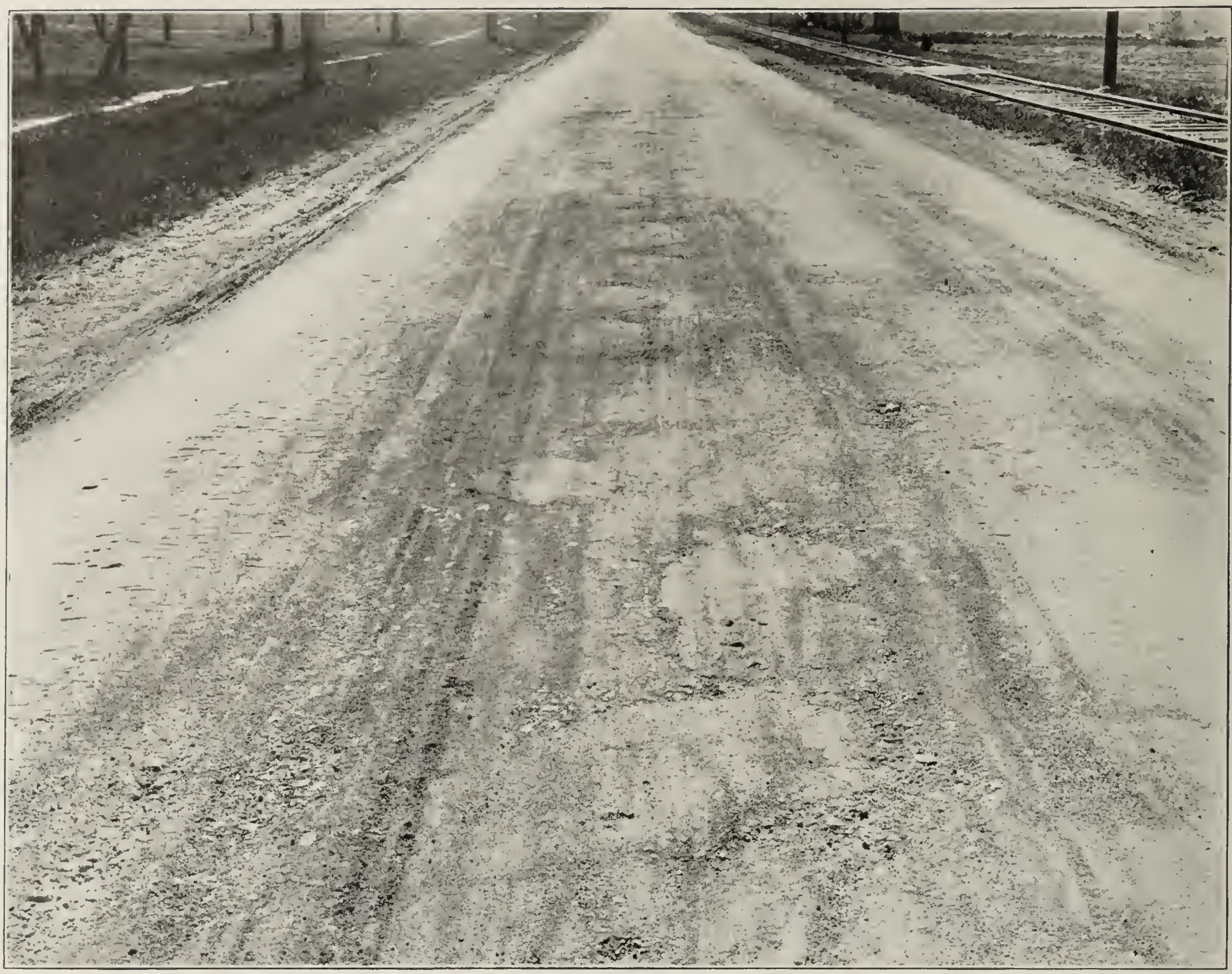
Furthermore, I recommend that the Legislature appoint a legislative committee to investigate the entire question and to gather data upon which the Legislature may act advisedly at its next session.

Those who are qualified to speak, inform me that by securing the vitrified brick for New York's roads in this manner brick roads can be constructed at a cost of $15,000 a mile.

On this basis the total cost of a mile of brick road for 20 years would be $16,000, including $15,000 for building and twenty years of maintenance at $50 a year. The total cost of mecadam road for the same period, as I pointed out, is $36,000.

An idea of the importance of the economy I propose may be gained from the fact that the total saving in the 7,300 miles of road yet to be constructed would amount to $146,000,000 in the twenty years after their completion, or more than the total cost of constructing our entire system of highways.

Surely it is worth while to turn this possible economy into an accomplished fact.



This is a concrete highway in New York and was one of the causes that led Governor Glynn to come out so strongly for brick. It is located near Buffalo and is known as the Buffalo-Williamsville Road. It was laid in 1909 *and resurfaced the following year,* 1910. *Concrete was decided impractical in* 1912 *and a contract awarded that year to cover the same with brick.*

> Far-seeing, constructive legislation is needed to prevent the squandering of millions of dollars of the people's money upon roads which are not needed in some instances, and which in all instances will not stand up under the present grind of heavy automobile traffic.
>
> New York should have good roads, but the only way to have good roads is to have only roads that New York can afford to maintain. A friend of good roads would rather see one road maintained in splendid condition than five roads gaping and neglected.
>
> I shall expect and shall exact results from the Highway Department during the coming Summer. I shall do whatever I can as Governor to see that the State receives that full value of its money in all roads built during my administration. But the highway problem cannot be settled in any single administration if the general plan is wrong.
>
> In view of the facts that I have presented for your consideration in this message, it must be conceded that our present methods of construction for most of our roads are unfitted for existing conditions.
>
> I ask the Legislature for its support and assistance in securing for New York the kind of roads that the State ought to have.

Bills carrying out the Governor's suggestions were prepared for introduction and legislative leaders asked for an emergency message to secure their passage before adjournment.

March 27, four days after the message was transmitted to the legislature, one of these bills—known as the Murtaugh bill, was passed by the Assembly. It appropriates $50,000 for the establishment of a brick making plant and the acquisition of lands for it at the Elmira State reformatory. The measure is now in the hands of Governor Glynn for signature.

New York Newspapers Indorse Governor Glynn's Plea for Brick

New York City's great daily newspapers indorsed Governor Glynn's message without a single exception, as did the papers throughout the state. The New York "Times," one of the most conservative and influential of the metropolitan papers, had an editorial the morning following the transmission of the message, this occupying nearly a column of space and taking first position on the page.

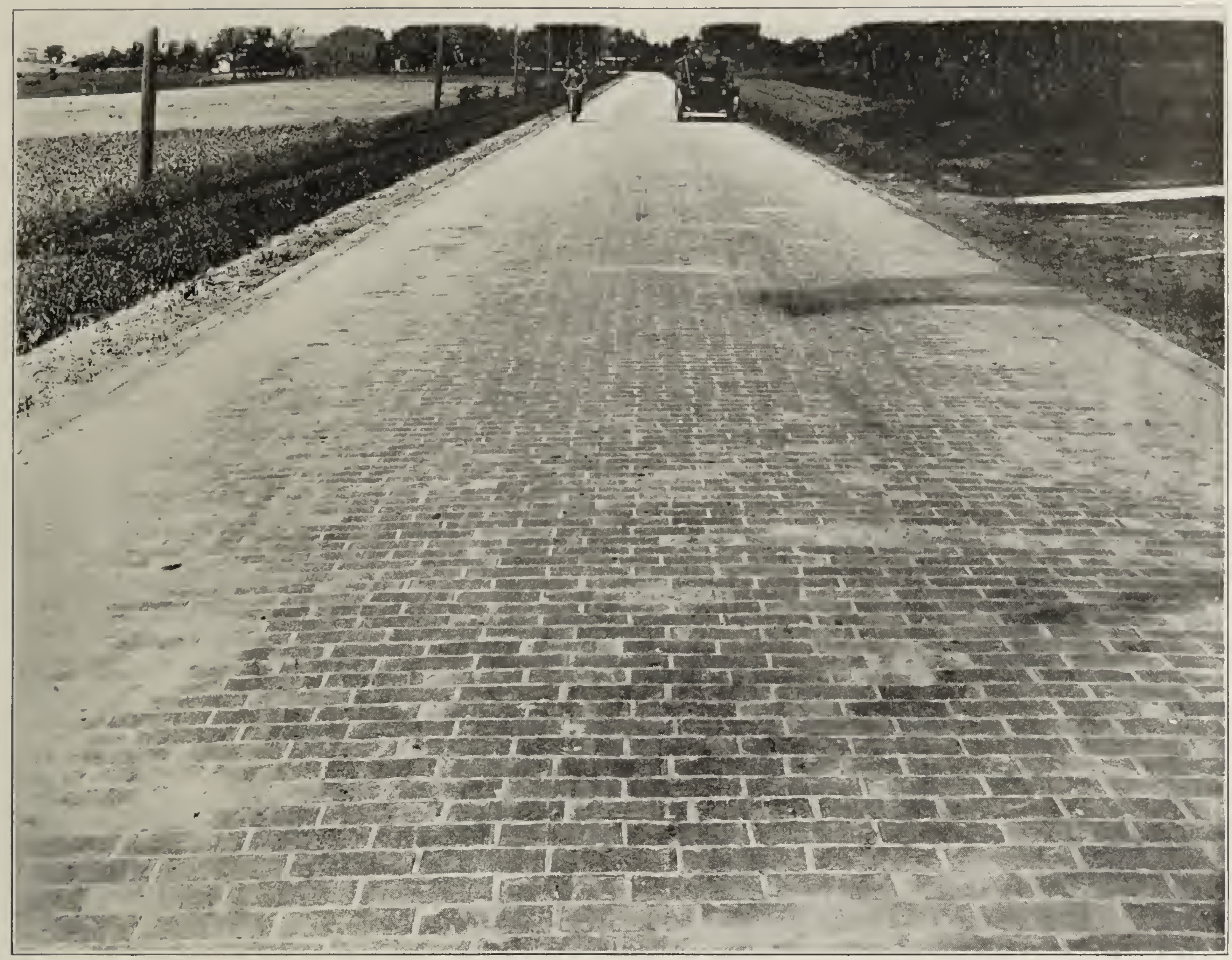
The New York "Herald," the same morning, urges the State Legislature to accept Governor Glynn's suggestion.

The New York "Sun" used a column editorial to comment on the message and says "It is to be hoped the Legislature will act favorably."

The New York "Evening Sun" declares Governor Glynn "Has made a useful suggestion which may help to solve one of the most tangled of the State problems."

NEW YORK "EVENING SUN" CALLS BRICK KNOWN AND SAFE MATERIAL.

One of the best comments on the message, showing the writer to be acquainted with the various types of materials, appeared in the editorial pages of the New York "Evening



Note the contrast between this excellent example of a vitrified brick highway and the concrete road on the preceding page. This picture—the Buffalo-Glenwood Highway—was taken six and a half miles from the Buffalo city line (Station 36) *and was constructed June,* 1911, *Dunn-Wire-Cut-Lug Block being used. The photograph was taken June* 8, 1912, *and shows a surface as smooth as a ball room floor. It is the kind of road that Gov. Glynn says we KNOW will last at least* 25 *years without repairs.*

Sun." It indorses the idea of using brick but questions the convict prison plant scheme. It says:

Governor Glynn's special message last night advocating the construction of vitrified brick rather than macadam roads in the State's $100,000,000 highway improvements and the employment of convicts in the State prisons to manufacture the brick deserves ready action by the Legislature, particularly upon the first head, and probably also upon the second, although that is more open to question.

Convict labor has proved successful at road building in Colorado, and in this case the Governor would limit its employment simply to the making of brick; nevertheless, there are aspects to the problem which are by no means so clear as the contrasts between brick and macadam.

A macadam road is at best an experiment, for so many elements affect the hardening and therefore the resistance. It is like a cake, which, for an infinite number of reasons, may or may not be a triumph. Brick, on the other hand, has almost invariably sustained the heaviest traffic, wherever installed. it is a known quantity, safe and enduring. Macadam roads, even in France, where they are finest, have succumbed to pounding of heavy motors and the scuffling of whirling tires, so that some of the most famous highways in Europe have become porous with dangerous holes.

Macadam, with an initial cost of $12,000 a mile to $25,000 for brick, was an obvious economy before the automobile era; but so ruinous to this type of roadbed have fast machines proved that now it quickly becomes more expensive. For, with an initial cost of $12,000 a mile, there is required $1,000 a year to repair and resurface it, and in ten years $6,000 a mile for reconstruction; or, figuring $8,000 for upkeep in the intervening period, a ten-year total of $26,000.

Starting with an initial cost of $25,000 for the brick mile, the annual repairs do not exceed $50 a mile—or $25,500 for ten years. The life of brick, however, is reliably established as twenty years, and this means that the brick mile aggregates a total cost of $26,000 in that period. Meanwhile the macadam mile has been costing $36,000—representing an excess over brick of $500 for each twelve months of the twenty years.

Governor Glynn has made a useful suggestion which may help to solve one of the most tangled of State problems.

NEW YORK "MORNING SUN" URGES ACTION ON SUGGESTION FOR BRICK

The morning edition of the New York "Sun" calls the message "A solution for two vexed questions of great importance—our enormous and wasteful expenditure on roads and that of providing work for the convicts." After epitomizing the points brought out by Governor Glynn, the "Morning Sun" says:

The new plan proposed by the Governor involves a greater initial outlay, but as brick roads have an endurance of twenty to thirty years they promise a very large saving in the long run. If the brick were bought in the open market the cost of construction to the State would be somewhere about $25,000 a mile, but the annual repairs would only amount to $50 a year on the average, and the life of the road could be counted on as at least twenty years. At the end of this period, it is figured, the macadam mile would represent a total expense of $36,000, while that of the brick mile would not exceed $25,000, a saving of $10,000 a mile. * * *

Notwithstanding this strong prima facie case the Governor makes now only a tentative proposal. He asks the Legislature to make a moderate appropriation to try out the plan experimentally with the labor of the Elmira Reformatory there being deposits of shale ample for the purpose close by the institution. He recommends also that a committee be appointed to inquire into the whole subject and draft comprehensive legislation. It would seem that in his message the Governor indicates solutions for two vexed questions of great importance, our enormous and wasteful expenditure on roads and that of providing work for the convicts of the State necessary for their moral and physical health.

It is to be hoped that the Legislature will act favorably upon both of his tentative proposals.

NEW YORK "GLOBE" CALLS MESSAGE MOST SIGNIFICANT AND A TIMELY ONE.

The New York Globe comments on the message in this manner:

> If a better method of road building than the one now generally employed can be found the state certainly should adopt it. Governor Glynn, in a message to the legislature, recommends that vitrified brick be used for highways instead of macadam, and wants the state to go into the business of manufacturing the material with convict labor.
>
> Macadam in the long run is the more expensive. The governor figures that whereas vitrified brick would cost to lay almost double that of macadam, divided over a period of twenty years, the former would represent an expenditure of only $26,000 per mile against $36,000 for the latter.
>
> Governor Glynn's statement that "New York is engaged in building 12,000 miles of road which will wear out forty years before they are paid for" is most significant, and calls attention to the imperative necessity for radical reform in highway construction. If the state does not change its policy it means that New York must "prepare to levy a perpetual yearly road tax of $2 on every man, woman, and child within its borders."

NEW YORK "HERALD" WANTS GLYNN TO HAVE HIS WAY ON THE HIGHWAYS.

The New York Herald urges the Legislature to let Governor Glynn have his way. It says:

> So disheartening have been the experiences of this state with road building by grafting contractors who have used concrete, asphalt and rubbish for construction that there is something refreshing in the special message of Governor Glynn asking for a test of vitrified brick.
>
> The State can make its own brick, using the labor of convicts, and the saving of expense will be many thousands of dollars a mile, while the lasting qualities cannot fail to be greater than the present type of material.
>
> By all means give the governor the appropriation for the experiment. Anything is better than a long continuance of the present system.

WHAT THE NEW YORK "TIMES" SAYS ON THE USE OF VITRIFIED BRICK.

The New York "Times" editorial, nearly a column in length, indorses the Glynn idea and urges its adoption. It reads in part:

> Gov. Glynn has driven straight to the heart of the highway problem in his message to the Legislature, pointing out that, if the second bond issue of $50,000,000 is to be spent as the first issue was spent, it will require $30,000,000 more to complete the system of 12,000 miles, and every year the taxpayers will be compelled to pay $12,000,000 for maintenance and repairs.
>
> The roads will have worn out ten years after their completion, and the State will have little to show for its expenditure of $250,000,000.
>
> The figures cannot be much, if any, overstated. The macadam roads cost yearly $1,000 a mile to resurface; at the end of ten years it costs at least $6,000 a mile to renew them. With 7,300 miles of the State and county system yet to complete, the maintenance fund needed on 4,700 miles is this year $6,117,932. After the first ten years the annual tax to perpetuate the system will rise to $20,000,000.
>
> These estimates are for the main routes in the states and counties, and do not include maintenance for the interlacing roads from farms and hamlets. The Governor proposes that the macadam construction be stopped on these main roads and that concrete, or brick with concrete foundation, be substituted. The former type is as yet, an unknown quantity. The latter type has thoroughly stood the test of experience.
>
> Gov. Glynn believes that the brick roads can be built at a cost of $15,000 a mile, using the great deposits of shale that overspread the southern half of the State and employing convict labor to manufacture the brick. That would merely extend the State's policy to make supplies for the departments with convict labor, and the roads themselves could be built, as now, with free labor.
>
> If the Governor's estimate is correct, by increasing the initial cost of road-building from $12,000 for macadam to $15,000 for brick with concrete foundation, the maintenance charge may be reduced from $1,000 to but $50 a mile yearly, and the life of the roads may be extended to twenty-five years for the hardest kind of traffic. * * * The prospect of saving $146,000,000, the total saving estimated by the Governor twenty years after the road system is completed, or of saving one-half or one-quarter that amount, would justify the appointment of a road committee to consider more durable types of construction.
>
> The immediate adoption of the type of brick over concrete foundation would be feasible in cases of the most heavily traveled roads, like that leading from this city to Albany.
>
> The Governor is to be congratulated upon giving his careful attention to this matter, which is of first consequence to the State.

Empire State Brick Manufacturers Take Advantage of Publicity Chance.

The unusual indorsement given vitrified brick in New York by Governor Glynn and the prompt action of the Legislature on his suggestion, has given the manufacturers of this material, not only in the Empire State, but all over the country, a number of excellent selling arguments and considerable activity has been shown in many directions.

The New York manufacturers, of course, were the first to take advantage of the opportunity presented them and inaugurated campaigns the day the message was given to the public through the newspapers.

The following letters show the interest some of these manufacturers manifested:

> We enclose herewith clipping from the New York "Times," dated March 24th, regarding "Highways of Brick Favored by Glynn," together with an editorial clipped from the same paper, both of which are self-explanatory and for your information.
>
> FISKE & COMPANY, New York City.

> In reply to your letter of the 26th inst., will say that I believe that Governor Glynn's message has gotten a very good share of publicity. I note that about all the Albany and New York City papers gave it considerable space. Coming after a couple of years' agitation against make-believe good roads, with which the state has been stung, the idea of a real good road, lasting several generations, is a novelty.
>
> Locally, the papers have been strong for brick state roads right along. In fact, one of our local county papers had an article giving all of Governor Glynn's arguments a week before his message was given out, and of course all the local papers have followed up the message. Aside from our interest in this message of the Governor's, I believe it is as popular a thing as he has done.
>
> I think the chief thing now to be done is to see that the idea is kept alive.
>
> C. E. CROOK, Supt., Tidewater Brick Co., Catskill, N. Y.

> On page 3 of the Buffalo "Express," March 24, there is an article on brick roads which struck me rather forcibly. We are enclosing a clipping herewith.
>
> G. A. GERMAN, Sun Brick Co., Ltd., Toronto, Can.

> We are sending you under separate cover, marked copy of Binghamton paper, which I think is about as fine a write-up of Governor Glynn's message as I have seen, and gives figures very clearly regarding macadam roads, and I trust this paper may be of service to you.
>
> I think this is the greatest thing that has happened for us in the publicity line, and comes unsolicited. Have asked Mr. Dunn of the Dunn Wire-Cut Lug Brick Co. to forward you some pictures of brick roads, which no doubt he will be very glad to do promptly. I believe we also have some pictures here, and are mailing you two.
>
> Our Eastern Paving Manufacturers' Association is thinking of having extracts of this subject placed in pamphlet form for general distribution.
>
> C. E. FOSTER, Foster Paving Block Co., Bradford, Pa.

> We are in receipt of your favor of the 26th and note what you say in reference to Gov. Glynn's special message to the Legislature on the use of brick for State highway construction.
>
> We think the same as you do that this is one of the greatest opportunities ever offered to the paving brick manufacturers and that they should take steps to push their product with publicity. We shall certainly do all we can to give the matter publicity and think that throughout this State it will be given a great deal of attention.
>
> STERLING BRICK COMPANY, Olean, N. Y.

Letters from other clayworkers throughout the country indicate a deep realization of the importance of giving great publicity to the Glynn message.

Paving Brick Association Seize Appofunity to Start More Aggressive Edncational Campaign

Immediately upon the publication of Governor Glynn's message clayworkers all over the country got busy. They were prompt to see the great possibilities in the indorsement of vitrified brick and will use it in local campaigns as a selling argument.

The National Paving Brick Manufacturers' Association was one of the first to take up the cudgel. An article was hurriedly prepared by Secretary Blair and Assistant Secretary Macdonald in charge of the publicity department and this was sent out to the press generally.

The Eastern Paving Brick Manufacturers' Association also prepared to have a pamphlet printed containing extracts from the message and other salient facts for the purpose of giving it wide distribution in its territory.

The Western Paving Brick Manufacturers' Association likewise was prompt to get its publicity department at work.

The article sent out by the National organization follows:

> A Boston lawyer, Louis D. Brandeis, jarred the self esteem of railroad managers some time ago by asserting that a million dollars a day are wasted by the railroads in inefficent

management. The debate that ensued has perhaps never reached any definite conclusions, but it has had the effect of calling to the attention of the railroad world as well as the shipping and consuming world to one simple fact:

It is not alone how much money you get but what you do with it that determines your prosperity.

Good road advocates for fifteen years past have exhausted their ingenuity and their efforts in the raising of revenue for road building. They have given America the impression that if sufficient money is forthcoming for good roads, the highway question is solved.

Meanwhile events in New York and almost every other state in the union suggest this retort from the public, "How have you spent the money that you have raised in the past?"

It cannot be claimed that road builders have wasted a million dollars a day or anything like that sum. It cannot be denied that there is a need of greatly increased road revenue, but the surest way to get road revenue is to deserve it, and the surest way to deserve it is to be able to show that it has been so expended as to produce dollar for dollar the value that it represents.

To do this two elements must be taken into account, first cost and permanency, as well as a constant useable condition.

The cardinal mistake made by a large number of road officials is that of counting the cost of a road as soon as it is laid with no reckoning of its out-of-repair condition. Governor Glynn of New York riddles this policy in his recent good roads message to the legislature. It is the cost at the end of ten or twenty years that should be the criterion. He says:

> New York is engaged in building 12,000 miles of road, which will wear out forty years before they are paid for.
>
> Unless the state makes a radical change in the type of road it builds, it will cost from $20,0000,000 to $30,000,000 yearly to maintain and rebuild New York's highways when the present system is completed.
>
> This is the real highway problem.
>
> It costs New York approximately $12,000 to build a mile of macadam road which, under present traffic conditions, will not last more than ten years. It costs a thousand dollars a year to maintain and resurface these macadam roads. And, at the end of ten years, when these roads are worn out, it will cost at least $6,000 a mile to rebuild them.

The governor points out that interest and sinking fund charges on previous bond issues will amount to $7,500,000 per year, besides the cost of maintenance and, at the end of ten years, the state will have little to show for its expenditure. Either the road policy of the state must be changed, he asserts, or the state faces a taxation charge equal to $2 for every man woman and child in the state.

The root of the trouble, the Governor says, is the fact that New York followed the lead of Massachusetts in building macadam roads which were admirably adapted for the light, horse-drawn traffic of the nineties, but utterly unfitted to withstand the heavy auto traffic of the present day. The remedy lies in recourse to hard surface roads, among which he prefers brick, as the only material which has demonstrated its ability to withstand the test of time. The first cost of such roads, he contends, might be $20,000 per mile as against $12,000 for macadam. He adds:

> Even if New York were compelled to pay $25,000 per mile for brick roads it would be economy to build such roads, instead of macadam roads where the state highways are subjected to heavy automobile traffic.
>
> The total expenditure for twenty years on a macadam road amounts to $36,000 per mile. This includes $12,000 for building, $18,000 for maintenance and $6,000 for rebuilding at the end of the first ten years.
>
> The total expenditure for twenty years on a vitrified brick road amounts to $26,000, if we allow a maximum of $25,000 a mile for building and $50 a year for maintenance.

Governor Glynn supports this estimate with figures showing that a brick road, properly constructed, will last from twenty to thirty years and "have admirably stood the test of the hardest kind of traffic." The annual cost he finds is "remarkably low, ranging from practically nothing to $10 to $50 per mile."

He continues with the recommendation that New York shale deposits be utilized and that prison labor be employed for economy's sake.

The admirable argument for permanency might be enlarged by pointing out that not merely economy but use is enhanced by such means. Even if it were cheaper to make ruts in a road every year and then fill them at the end of the year, no one enjoys driving through temporary ruts, or dropping into chuck holes even a portion of the time.

A dozen other states have come to the same conclusion that New York is now forced to face. Some of them have been fortunate in reaching it without so much expenditure for impermanent roads. New York's misfortune was that of following accepted road practice of a dozen years ago, practice which had been developed before the day of the automobile and had little or no relationship to the conditions of power traffic.

"The total expenditures for twenty years on a macadam road amount to $36,000," says Governor Glynn. This includes $12,000 for building, $18,000 for maintenance and $6,000 for rebuilding at the end of the first ten years.

"The total expenditures for twenty years on a vitrified brick road amount to $26,000, if we allow a maximum of $25,000 for building and $50 a mile for maintenance.

"On these OUTSIDE figures the difference in cost for twenty years between macadam and brick roads shows a balance of **$10,000 in favor of the brick road."**

The newspapers generally throughout the country have made favorable comment on Governor Glynn's measure. We regret we have not space to reprint some of these.

Wants Clayworkers to Join Builders' Association

It is now fifteen years since the National Builders' Supply Association was organized. At the time of its organization there was little or nothing in common between the manufacturer of building supplies and the man who came directly in contact with the public—in other words, the dealer. Each apparently looked upon the other as a source of evil, and while today conditions are far from being perfect, still it may be rightfully said that they have far advanced from that chaotic state which existed at the time the organization was first brought to light.

At the Association's last convention, held in Chicago during February, the feeling was prevalent that the organization was now old and strong enough to assume a larger place in the building material world, and to take more of an active part in initiating constructive reforms instead of recording passing complaints.

In the past the membership of the Association has been largely drawn from those manufacturing and those dealing exclusively in lime, cement and the plastering divisions of the building supply business. This year a great step in advancement has been taken towards making the Association fulfill a broader mission, in the election to its presidency of Edward K. Cormack, vice-president of the Wisconsin Lime & Cement Company, who has for a great many years been managing the clay products department of his company, in addition to looking after the Portland cement department.

The clay products manufacturers throughout the country realize that there is room for them in the N. B. S. A. and furthermore that they intend to take advantage of this opportunity is evidenced by the following letter from Eben Rodgers of the Alton (Ill.) Brick Company, and president of the National Brick Manufacturers' Association:

Alton, Ill., March 16, 1914.

E. K. Cormack,
Pres., National Builders' Supply Ass'n,
Chicago, Ill.

Dear Sir:

Replying to yours of the 13th, will say that I am very glad to join your association and am enclosing herewith application. I feel confident that your election as president of this organization will mean a closer relationship between the brick manufacturer and the dealer.

(Signed) Eben Rodgers.

Soon after Mr. Cormack took charge of the affairs of the Association, the question came up before the Interstate Commerce Commission of authorizing the railroads to charge a fee for the spotting or placing of cars on industrial sidings. It was thought that this proposed charge would work a serious hardship on every manufacturer and dealer who shipped and received material in carload lots, and not content with having wired to the Interstate Commerce Commission requesting the postponement of the order, he also made arrangements to have an experienced traffic man on deck in Washington to look after the Association's interest.

This is but one of the many things that a national wide-awake association, such as the N. B. S. A. can perform for its members.

The Association always has stood for the manufacturer, selling through and encouraging the local dealer, and it is along these lines that an active campaign of education is being waged, looking forward to the establishing of a closer relationship between the manufacturer and the dealer, which, when accomplished, will result in the manufacturer seeing that the expense of distributing goods demands a comfortable margin of profit, and the dealer likewise will see that the manufacturer requires a fair and honest representation.

The clay workers of the country, who market part of, or all their supplies through the building material dealers, have been invited to join the N. B. S. A. The membership fee is $10 per year.

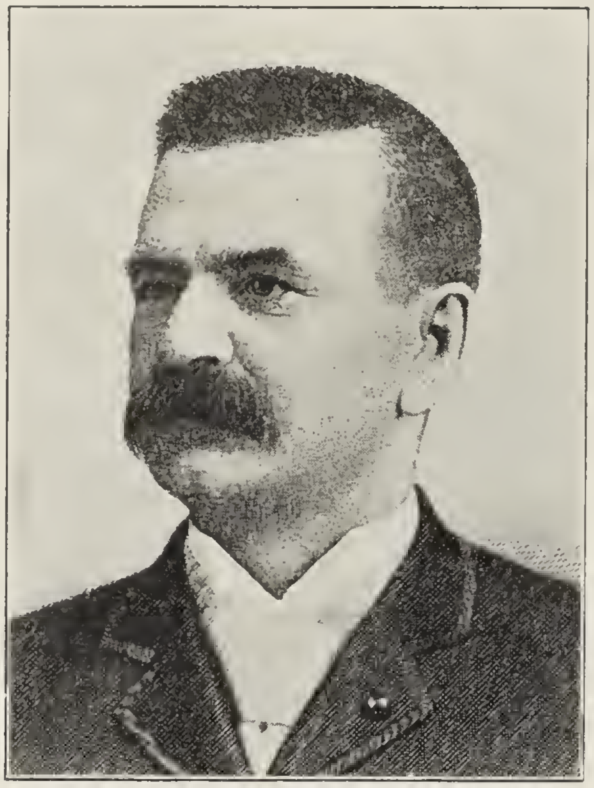
The following coupon form has been proposed by President Cormack, and it may be filled out and sent to him at the address given below:

NATIONAL BUILDERS' SUPPLY ASSOCIATION.
Chamber of Commerce Bldg.
Chicago, Ill.
APPLICATION FOR MEMBERSHIP.

The undersigned being heartily in accord with the principles and aims of the National Builders' Supply Association does hereby apply for membership:

Firm name..
Signed by..
P. O. Address..
Date ....

D. V. Purington Dies in South of Paralysis



D. V. PURINGTON.

D. V. PURINGTON, founder of the Purington Paving Brick Co., of Galesburg, Ill., and Chicago, and one of the most generally known men in the clay product field, died Wednesday, April 1, at his Winter home in Ocean Springs, Miss., as a result of a stroke of paralysis. The funeral service and burial occurred Friday, April 3, at Ocean Springs.

Mr. Purington had been ill several years, having a severe attack of kidney trouble about seven or eight years ago, while still actively engaged in the brick business. Although he recovered from that specific attack, he never was in very good health from that date, and the past Winter his condition alarmed his friends on more than one occasion.

About two or three weeks before the National Brick Manufacturers' Association convention in March at New Orleans—only a few miles from his Winter home at Ocean Springs, he received a paralytic stroke. This, coming on the eve of those annual events in which he always had taken such an active interest, caused a wave of deep sympathy for him among the legion of clayworkers, who had anticipated seeing him at New Orleans. Possessing an indomitable courage and a will of iron, Mr. Purington fought off the illness that had stricken him and by the time the convention had opened—March 2—he had so far recovered as to be able to make the New Orleans trip possible, and, to the great surprise of not only the clayworkers in general, but also to his intimate friends, he was seen mixing with his friends in the lobby of the Grunewald Hotel the first day of the session.

The exertion was too much for his physical condition, however, and, after the first two or three days of the convention he was forced to keep close to his room in the hotel.

Saturday, the last day of the meeting, Mr. Purington returned to Ocean Springs. The following day he received a second stroke and his life hung in the balance for several days. The members of his family and his intimate friends who remained so closely at his side, realized that the end was not far, despite his assurances that he would recover and yet show them that he had several years of usefulness to live.

This stroke—the second and most severe, while not rendering him unconscious, weakened him considerably, and the strong vitality that had marked the seventy or more years of his existence, fast waned.

Early Wednesday morning, April 1, about 6 o'clock, a third stroke of the deadly illness seized him and he succumbed. Around the deathbed were the widow, Mr. and Mrs. Charles B. VerNooy, other relatives and friends. Mrs. VerNooy, a daughter of Mrs. Purington by a former marriage, was a favorite with Mr. Purington, and, as he had no children of his own, he lavished a wealth of devotion on her.

Dillwyn Varney Purington was born at Sidney, Me., Jan. 2, 1841, and eight years later moved to Massachusetts with his parents. A large portion of his early life was spent at Amesbury, in that state.

In August, 1861, Mr. Purington enlisted in the Federal army and served with credit to himself and to his country in the Civil war until January, 1866, when he was mustered out. He enlisted as a private in the Fourth New Jersey Volunteers and when he was mustered out bore the title of captain and assistant quartermaster, United States Volunteers.

Mr. Purington came to Chicago in April, 1869, and entered the lumber business. In April, 1872, he associated himself with S. S. Kimbell, and began the manufacture of common brick under the firm name of the Purington-Kimbell Brick Co. This firm took a prominent part in the rebuilding of Chicago following the great fire of 1871 and the city of brick that was builded out of the ruins of that conflagration may be attributed largely to these two men.

In 1890, Mr. Purington and Mr. Kimbell separated, the former organizing the Purington Paving Brick Co., of

(*Continued on page* 832.)

Advises $150,000 Fund to Boost for Clay

Fritz Salmen Reports on Plan to Give Brick to Exposition

URGES N. B. M. A. ACT AT ONCE

"ASSURE the construction of the New Orleans Exposition of Big Ideas of brick by contributing $150,000, or its equivalent in brick," is the suggestion made by Fritz Salmen, of the Salmen Brick & Lumber Co., Slidell, La., to the Executive Committee of the National Brick Manufacturers' Association.

This suggestion now is in the hands of the Executive Committee for consideration and will be acted upon at a special conference of that body.

Mr. Salmen, who is a member of the Executive Committee, was chosen to make a full report on the Exposition and the men behind it with the idea of seeing if the proposed show had any assurance of being a reality or merely was the dream of some promoter.

This investigation was prompted by the proposition to build the Exposition of burned clay products and make it permanent—a monument to the only imperishable building material, its sponsors planning that the brickmakers of the Nation would derive a great amount of cheap publicity out of the matter.

The suggestion followed an address before the N. B. M. A. convention last month in New Orleans by Herbert Kaufman, the director general of the Exposition and the man who has furnished the entire plan for the show, as well as the steam to force that plan through.

Mr. Kaufman declared that the Exposition company wanted to make the buildings permanent and that either brick or concrete would be used in all construction. His executive board, he admitted, leaned somewhat towards brick, but for obvious reasons he was inclined to be noncommittal for the present.

The plan suggested was for the brickmakers of the Nation to supply the brick free to the Exposition and have the N. B. M. A., the parent organization among the clayworkers, to stand sponsor for the scheme and lend its aid in bringing the matter before the brickmakers of the country.

The details of the suggestion were not announced, other than that it was proposed that the brick be given by general contribution by individual plant owners, each one sending whatever quantity be required be sent to some central point, from which place carload shipments would be made to save freight charges.

Mr. Salmen, in his report, says the Exposition is an assured fact and names a list of New Orleans' wealthiest and most prominent men who are backing the proposition. He further urges that the brickmakers accept the opportunity as one of the greatest they ever had to obtain some real publicity for their product and advises a prompt acceptance of the invitation extended to them, as the time is short.

Monster crowd at Canal and St. Charles Streets, New Orleans, to see great clock register amount of contributions for Exposition of Big Ideas.

However, instead of advising contributions of brick, Mr. Salmen believes that money should be given and suggests a plan. He says:

Let forty of the largest brickmakers give $1,000 each..	$ 40,000
Four hundred smaller brick makers give $100............	40,000
Six hundred smaller brick makers give $50..............	30,000
Brick machinery manufacturers, as a whole, give........	40,000
Total..	$150,000

"By this plan the brick may be obtained in the quickest and most economical way," continues Mr. Salmen.

"Further, the subscribers will be given stock in the Exposition, dollar for dollar, and the chances are that the company will be able to return to the stockholders at least 50 per cent of the capital stock."

Joseph W. Moulding, of the Thomas Moulding Brick Co., Chicago, and president of the American Face Brick Manufacturers' Association, made a special trip to New Orleans to confer with Mr. Kaufman and the Exposition officials, with the idea of acquainting himself with the proposition. He returned enthused over the project and proposes to bring the matter up before a special meeting of his Executive Board, which meets early this month at Pittsburgh, Pa.

"We want to do all we can to boost brick," declared Mr. Moulding to a representative of "Brick and Clay Record" in Chicago, immediately after his return from the South, "and will give every assistance possible to the N. B. M. A. should that organization decide to accept the proposition and seek to get the contribution of either the brick or the money."

The letter which Mr. Salmen wrote to the Executive Committee of the N. B. M. A., as his report on his investigations, and which was published in the New Orleans newspapers and given front page space Sunday, March 29, follows:

> In accordance with the instructions given me by the National Brick Manufacturers' Association I have investigated the New Orleans "Exposition of Big Ideas."
>
> The directors of the exposition company are: W. B. Utley, acting president, who is president and general manager of the W. B. Utley Company; Hugh McClosky, the vice-president, is

president of the American Cities Company; John J. Gannon, the treasurer, is president of the Hibernia Bank & Trust Company. The other directors are Theo. Grunewald, the vice-president and general manager of the Grunewald Hotel Company; A. Dumser is president Metropolitan Bank; Sol Wexler is president Whitney-Central Bank; J. S. Cave is manager Harry Brothers Company; Ben C. Casanas is president Merchants' Coffee Company; James E. Thompson is president Item Publishing Company; Lawrence Fabacher is president Jackson Brewery; Claud M. Smith is a stockbroker; C. A. Stair is superintendent Cumberland Telephone & Telegraph Company; I. R. Jacobs, shoe merchant; Robert Ewing, publisher "Daily States;" D. D. Moore, manager "Times-Democrat;" Harry McEnerny, secretary and assistant manager "Daily Picayune;" Ben Beekman, clothing merchant; Val Merz, president Dixie Brewing Company; Charles A. Hartwell, president C. C. Hartwell Company; Martin Behrman, mayor city of New Orleans; Thomas J. Freeman, president International and Great Northern Railway Company, general councilor for Texas and Pacific Railway and president New Orleans Association of Commerce; Albert Aschaffenberg, real estate operator; William Paff, president Union Homestead Association, and Hy. Groffman, manager Cluett, Peabody Company. Messrs. Sol Wexler and J. J. Gannon are the guiding spirits of the two largest banks in Dixie, and the balance of the board stands, without exception, at the head of the New Orleans business community.

I will state that these gentlemen fully indorse and support Herbert Kaufman. The members comprising the board are men of highest standing in the business circles of New Orleans, and could not afford to lend their names to any fake or questionable enterprise.

After a lengthy interview with Mr. Kaufman, I learn from him that the exposition proposes to disclose to the public the most efficient way of doing everything, and, in fact, is to show what is to be and what is to come for the next five years, whereas usually expositions show to the public what has been accomplished a few years previous to the exposition. The plan is to erect the buildings in the most efficient and economical way, and if brick is used, builders and contractors will learn immediately how best to erect a brick building for the least money. Every stage of the actual erection of the buildings will be taken by a moving-picture apparatus, and these pictures will afterwards be reproduced in every city of the country. This will be done, not only for the erection of the buildings, but of every other thing that will be exhibited in connection with the enterprise.

I am inclined to believe that would give brick an excellent opportunity to demonstrate not only to the Southland, but the entire country, that it is the best and only reliable building material, and that buildings can be erected at a minimum cost when using brick. While I think and hope the use of brick is being reinstated gradually, yet it might expedite the return to brick if brickmakers could see their way clear to advertise their product at the New Orleans exposition. The exposition management prefer to use brick, as they recognize its merit.

My plan by which the amount might be raised by the brickmakers is shown by the following plan: Forty large brick manufacturers, $1,000, $40,000; 400 smaller brick manufacturers, $100, $40,000; 600 small brick manufacturers, $50, $30,000; brick machinery manufacturers, $40,000. Total, $150,000.

This is merely a suggestion should the brickmakers decide on profiting by this opportunity. Mr. J. W. Moulding, of Chicago, president of the Face Brick Manufacturers' Association, had an interview with the management the day before I met Mr. Kaufman, and according to reports as shown me by Mr. Kaufman and signed by Mr. Moulding, he also seemed to be impressed with the opportunity the brickmakers have to offset the use of a material which has been the brickmakers' greatest competitor in the last ten years.

As you will notice, subscribers will receive stock in this exposition company to the amount of their subscription, and the chances are that the company will be able to return to the stockholders about 50 per cent of the capital stock. The company owns a tract of ninety-two acres not far from Canal Street, which they bought about two years ago, and the value of these lands is increasing continuously, so that if brick buildings were put up on these lands these in turn would prove investments.

I am sending a copy of this letter to each member of the executive committee, and if they think favorably enough of the matter, I think it would not be amiss to have this committee meet in some central location to consider this subject at once, for whatever is done will have to be done without delay.

Mr. Moulding, who spent a day in New Orleans with Mr. Kaufman and the Exposition officials, was interviewed by the New Orleans press representatives and his conclusions are found in the following extract from the "Picayune" of March 19:

I am surprised to learn the scope and plans of this exposition. This will be something entirely different from anything ever held before. The department of efficiency will be of particular interest not only to manufacturers, but to merchants as well. The principles of efficiency are badly needed in industry and business. The men who are responsible for the country's manufactures and trade cannot afford to remain away from an exposition of this character.

One of the most valuable exhibits that you will have, to my mind, is that which will feature the facts connected with fire prevention and fire losses. The education which the public will receive as to the effects of fire losses will show them how it is that they directly pay for the stupendous waste due to fire each year in this country. Inflammable construction is for the most part inexcusable, as the cost of brick is only about 10 per cent higher.

Once a man builds himself a house in which to raise his family he should be certain that he will not have to bear the cost of rebuilding during his lifetime unless he so desires. The saving in fire insurance alone by building properly will in a short time overcome the slightly higher cost of initial construction.

The substantial prize to be offered for a model American home will afford a splendid opportunity for manufacturers of building materials to prove their goods. We have no fear of what the outcome will be in the competition. We know the value and substantial character of brick, and we will be only too glad to match it with any other building materials.

The cost-of-living exhibit will also be a very desirable feature. Here let me say that a well-built home, properly furnished, is certainly a very important part of the cost-of-living exhibit. Whether a man rents or owns the house in which he lives it matters little; he is interested in having houses built as cheaply as possible. The more substantial the construction, the cheaper, in the long run, to the man who rents.

For a long time I have been familiar with Herbert Kaufman's writings, and have wanted to meet him. His connection with some of the country's biggest industrial institutions and his world-wide experience as a handler of men make him just the man for directing an exposition.

One of the most interesting things to me has been the manner in which this exposition has been made possible. Most enterprises of this nature are conceived and carried out generally by a very few men. It has been a revelation to me to note the widespread interest which prevails. The fact that the people of New Orleans have been able to get together as one in a great public movement as citizens only, without thought of faction or other dividing influences, is as great tribute to them as it is to the man who has brought this about. Mr. Kaufman's experience as an editor has doubtless served him well. He knows what the needs of the average man are and he has planned an exposition that will interest all classes.

The newspapers and the periodicals of the country are giving considerable space to the New Orleans Exposition. The novel plan which Mr. Kaufman has evolved to obtain the $5,000,000 necessary to assure the Exposition, has attracted considerable interest. Every dollar is to be raised by popular subscription and a small army of volunteer solicitors began the first campaign a few days ago.

A huge clock was erected at Canal and St. Charles streets. The dial shows various sums up to the $5,000,000 mark. By one o'clock on the afternoon of the first day of the campaign, $310,000 had been raised, the average sum from the small resident owner or renter being $5.17. On March 30 the subscriptions had reached the half-million mark.

Clayworkers May Build Brick House on Frisco Exposition Grounds

While the New Orleans Exposition of Big Ideas is seeking to interest the brickmakers of the Nation in a project to build the great show permanently, using burned clay products exclusively, another movement is on foot to erect a model brick and tile house on the grounds of the Panama-Pacific International Exposition at San Francisco.

This suggestion comes from the clayworkers themselves and is made for the purpose of showing to the world the proper way to build a fire-proof, comfortable home.

It is barely possible that the American Face Brick Manufacturers' Association will father this idea. President Joseph W. Moulding proposes to bring it to the attention of his organization at a meeting of the Executive Committee early this month in Pittsburgh, Pa.

"It looks like an opportunity that the brickmakers should not overlook," declared Mr. Moulding in an interview with a representative of "Brick and Clay Record."

A letter from Charles E. Van Barneveld, chief of the Department of Mines and Metallurgy of the Exposition Company, to "Brick and Clay Record," under date of March 30, advises that the proposition may be acceptable to the Exposition and that space possibly can be allotted to a brick building such as is suggested.

The idea, as outlined, proposes that the brickmakers and the hollow tile manufacturers contribute sufficient funds to purchase the material in or near San Francisco, the California brickmakers giving the material at cost.

The bricklayers' union would be asked to contribute the labor as their part in the great boost for brick.

Form Central West Organization On Open Price

WITH nearly two hundred representative clayworkers from the states of Illinois, Indiana, Iowa, Minnesota and Wisconsin in attendance at the meeting called by the Illinois Clay Manufacturers' Association and held in Chicago March 19 at the Hotel La Salle, a decision was reached to form an open price policy association in the Central West. A temporary association under the title of the Society of Clay Manufacturers and Dealers, was organized with D. C. Haeger, of Aurora, Ill., president; A. E. Huckins, of Champaign, Ill., secretary; and W. C. Varney, of Chicago, treasurer.

A committee consisting of D. C. Haeger, A. E. Huckins, J. L. Buckley, of Aledo, Ill., and Iverson C. Wells, of Chicago, was appointed to work out the details of a permanent organization. This committee got into prompt action and after a conference with the several interests decided that it was best to take one group of clayworkers and form this into an association as a nucleus and gradually bring all other branches of the industry in under the New Competition.

The face brick dealers and manufacturers of Chicago, who have been grouped together under the name of the Chicago Face Brick Association for several years, were the first group for the committee to take up and the evening of the same day, the members of this association met with the committee and took the matter under advisement. Thursday evening the members of the Chicago Face Brick Association held another conference, but without the committee, and reported later that they had decided to reorganize along the lines suggested.

Later a special committee from the Chicago Face Brick Association conferred with Arthur Jerome Eddy, the author of "The New Competition" and the creator of the Open Price Policy idea. At this conference it was decided to have Mr. Eddy advise the members on the tentative plans for an organization. A conference is to be held early in April with all the members of the Chicago Face Brick Association in attendance and as a result of this meeting it is expected that the nucleus of the Central West Association will be formed.

The meeting at the Hotel La Salle was called at the instance of the Illinois Clay Manufacturers' Association, which, at its last annual session at Champaign several weeks ago, decided to reorganize along the lines of the Eddy plan, appointed a committee to draft a plan for this purpose and adjourned to meet in Chicago March 19.

D. C. Haeger, of the Haeger Brick & Tile Co., Aurora, Ill., president of the Illinois Clay Manufacturers' Association, and chairman of the committee on reorganization, presided at the meeting and secretary A. E. Huckins, of the same association, acted as Recorder Plenipotentiary.

After briefly stating the object of the meeting Chairman Haeger called upon Mr. Huckins to explain the actual working conditions under which an association such as was proposed would act in the Open Price Policy. Mr. Huckins spoke as follows:

We are all interested in an industry that is not on a business basis, and of which, where we come to the inner workings thereof, we are justly ashamed. It is a reputed fact that the clay men are below the average in intelligence which decision is arrived at by the cut-throat methods in which they handle their business.

The contractor or purchaser of clay products does not care what price, within reason, is placed upon a product providing he has the best price quoted.

D. C. HAEGER.

Every man is justly entitled to a legitimate profit upon his earnest endeavors providing these endeavors are well directed and expended.

It is upon these self-evident truths that I am going to base my argument.

An organization of this character will naturally bond the members very closely together into an organization which, it is needless for me to tell you, can work untold good in preventing adverse legislation, in standardizing cost accounts, in disseminating much helpful information and in a thousand other ways.

Here we have an industry on one hand, which is not returning a legitimate profit on the money invested. On the other hand, we have a jobber who, by cut-throat methods, is forced to job material at too close a margin. This is a condition we find.

We look around us at other industries and other avenues of endeavor and find conditions very much different. We find them banded together in well-organized associations which are getting results. The large and small manufacturers and dealers are alike interested and take an active interest in promotion, publicity, best methods of approach. Why? Because they are making money and desire to know how they can make more.

We want to get our industry upon a business basis, receiving a legitimate return, and to do this without any desire to restrict competition—without any desire to stimulate prices beyond the point of good business, and to do all of this legally.

We are here to accomplish this end and we do not intend to fix any prices.

I would never consent to meet here if we did not have a definite purpose in view and that purpose set forth in black and white so that no mistakes can be made as to why you meet and everyone may be free to know.

The spirit of this "New Competition" is to have no gathering or meeting which cannot print the names of its officers or give the reasons for its existence. To have no meeting to which you cannot invite any customer or competitor who cares to attend and to hear what is said and done.

You can no longer meet behind closed doors and you can no longer do anything in secret.

You never have been able to do anything by the secret organizations. You have all heard of the rough roads of such meetings in many industries in the days now far in the past.

We belong to a many-priced industry. It seems that some of your good competition has as many prices as it has customers and a dozen prices for the same customer—anything to get the business.

Did it ever occur to you that these cut-throat methods do not increase the demand for your product but merely force you and your competitors to sell at ruinous prices in order to land that one particular order?

We, as a whole, are going to sell just as many brick or just as much tile in the course of a year either way, only in one instance we make a legitimate profit and in the other we do not.

Some of the delegates in attendance at the recent annual convention of the Western Ontario Clay Workers' Association, at Chatham, Ont.

In the "New Competition" you are not bound for a fraction of a second to observe any price of any character. You can make any price you please but you will, as you make these prices, file a copy of the same with a Secretary for distribution among your competitors who are quoting on the same job and on the same material.

Your competitor does likewise and you get his quotation as soon as you send yours in, providing he has already quoted. If he has not quoted on the same material as you, you will receive a copy of his quotation as soon as he makes the same. If the quotations are changed you know it.

Understand, you are all free to make all the changes you care to. If you want to get business by quoting lower prices well and good, but all your competitor asks is, that when you quote a lower price, he shall know it.

The Open Price Policy was tried in the steel industry in a certain state and brought about a greater stability of prices, and in Pennsylvania the courts gave it a clean bill of health.

Quoting from Mr. Eddy, who wrote the book, "The New Competition," which treats on the Open Price Policy Plan, and who delivered an address before an industrial body at New Orleans sometime ago. Mr. Huckins read:

"I met a body of men who were in great distress—competition was vicious and vindictive. I said to these men: 'Your work is all done in contract. Inquiries come to you from the various railroads for estimates and bids. Speaking as if I were one of you. I will do this: I will not enter into any agreement with you to fix prices. If I want to give away my work, I will do it, or sell at cost, or half what it is worth, but whenever I get an inquiry I will file it with the secretary and also a carbon copy of the bid, just as it goes to the purchaser, and the secretary will send the carbon copy of my bid to every bidder on the job as each bid comes in. When I get your bid, if it is a little lower than mine, I am at perfect liberty morally or otherwise, to immediately cut your bid and notify the purchaser. My only obligation is that when I do that, I will file my new bid so that you will get it and have an opportunity to revise your if you want to. In other words, we will make it an auction. We will make it open. And, if desired, will conduct that auction in the presence of the purchaser himself.'

"I did not get much response the first day, as far as the gentlemen who were there, were concerned.

"They said, 'That is a little too far advanced for us.' Then I said: 'Let's start with the least common divisor in this assembly and see what you will do. Will you file the contracts you get after you have them and then compare them?'

"Yes, they would do that.

"'Now, your next step is to agree to file your bids.'

"The next day they agreed, saying that things could not be any worse than they already were. What was the result? It took from the purchasing agent the opportunity to cut figures by lying and that is an opportunity that the average purchasing agent and the average purchaser is quick to see. He has been able to say he has a little lower figure when he hasn't. You don't see you are in the dark. He may not have a single bid but yours, and yet he will say, 'You are a little too high, old man—you'll have to shade it.' What can you say?"

Continuing Mr. Huckins said:

These conditions no longer exist, if you are working under the "New Competition" as you know all the quotations. If you are low, there is no use of competing with yourself.

The old secret agreements fixed prices. The "New Competition" brings out in the open all prices you actually have charged and that is all.

The prices which you quote go to your competitors who are quoting on the same material.

How many of you have given better discounts, terms, or reductions than you would if you knew that those terms were to be made public or practically so?

You know of industries where they get up and tell one another what they have purchased raw material for since the last meeting of the association and what they thought of the market for the next thirty days. These men have learned that it pays to educate their trade—that it pays to educate their competitors. They have learned that it pays the big company with its facilities for cost accounting to give the little fellow the benefit of information—for intelligent competition is always less disastrous than ignorant.

Mr. Huckins here quoted again from Mr. Eddy's New Orleans address and resumed as follows:

The "New Competition" is very simple. You must make up your mind to be absolutely honest with one another. If you are not your competitors know it as soon as the job is let and at your meetings you are asked the whys of any deal. You can enlarge this to stock reports. You can employ an expert in plant efficiency, cost accounting, publicity, and for many things for the good of your industry which will suggest themselves as you go along and as you grow.

For the present let me quote the objects of a New Competition Association recently formed in Kansas among clay workers and which would apply to us:

"To promote publicity in the transaction of business, and to promote cordial and friendly relations among members by means of occasional meetings, thereby removing, so far as possible, misunderstandings and ill feelings due to the spreading of false reports and baseless charges, and to ignorance of conditions prevailing in the industry.

"To collect and disseminate information relating to the manufacture and sale of their various products, including accurate information regarding capacities and outputs of all plants engaged in the manufacture of such products, together with information regarding tonnage of product, orders and prices received therefor, labor conditions and material markets, and the condition of the industry generally.

"To the end that each member, however small his output, may be placed, in so far as data for the intelligent conduct of his business goes, on a footing of equality with other companies.

"To devise ways and means to promote and extend the use of clay products, and to introduce and maintain high standards in the manufacture of same to the end that customers and the general public may be assured of high and uniform quality, it being the belief of those engaged in the industry that it is only by organized efforts that these results are accomplished.

"To devise a scientific system of cost accounting to the end that each member may know accurately the cost of his product.

"To take up and carefully consider sanitary, hygienic and safety measures and appliances, and, in this connection, the insurance and pensioning of employees.

"To bring out into the open all competitive conditions, and, the introduction of the open price policy with the hope and expectation that the adoption of such a policy will result in more pleasant relations and better manufacturing conditions."

In conclusion Mr. Huckins said:

I believe I have covered the ground briefly, but should there be anyone here who is in doubt about any particular point or who wishes further information, I believe there are some of us who can enlighten you.

Chairman Haeger then called upon Iverson C. Wells, a member of the committee, to read the report for which the meeting was called to hear. It follows:

Your committee, which you appointed at the last annual meeting of this Association at Champaign, with instructions to investigate the practicability of the Open Price Policy and report on the same, with recommendations, at a special meeting to be held in Chicago March 19, 1914, begs leave to advise:

First, That it has consulted Arthur Jerome Eddy, the author of "The New Competition," and the creator of the Open Price Standard which has so deeply interested industrial and commercial bodies throughout the Nation, and has obtained a clearer understanding of the purposes and intent of the said policy, as affecting industrial organizations.

Second, That it has conferred with the officials and a number of the members of an association of clayworkers, national in its scope, which has been operating under Mr. Eddy's plan for a year, and which was organized by him, and that it has obtained an understanding of the details of said plan as used by this association.

Third, That it has conferred with the president and some of the members of another industrial body, but not of clayworkers, which was organized several years ago, by and under the direction of Mr. Eddy, and that it has obtained a free expression of the benefits that have accrued therefrom.

Fourth, That it has consulted with a number of clayworkers in the states of Illinois, Indiana, Iowa, Minnesota and Wisconsin and obtained their expressions as to the practicability of the open price policy as applied to an association including such a varied interest as might be formed of all the manufacturers in the several states mentioned.

Now, therefore, in view of the information secured as herein set forth, and from other sources not here mentioned, your committee begs to advise that it has found that wherever the Open Price Policy has been applied that the associations so applying it express the fullest satisfaction with the benefits obtained from it and recommend it highly as a means for correcting the many evils that beset the manufacturer under the old and unfair competitive methods.

And, further, this committee recommends that the Illinois Clay Manufacturers' Association do adopt the Open Price Policy, providing that such policy fully coincides with the principles so clearly and forcibly outlined by Mr. Eddy in his book, believing that such an organization will prove of inestimable value to the industry as a whole.

And, further, this committee recommends that a cordial invitation be extended to the clayworkers of Indiana, Iowa, Minnesota and Wisconsin to join in the formation of such an association, believing this to be to the best interests of the clayworkers in the territory mentioned.

And, further, this committee recommends that an association separate and distinct from the Illinois Clay Manufacturers' Association, or any of the existing organizations in the states herein mentioned, be formed.

And, further, that this association be constituted in the form and manner as herewith outlined, to wit:

That a president, secretary and treasurer be the only officials, other than an executive committee.

That the president, treasurer and executive committee be elected by popular vote annually.

That the secretary be an appointee of the executive committee and that he be paid a salary and that he be not connected in any way with the industry as a manufacturer or selling agent.

That headquarters be established in the city of Chicago where the secretary will maintain an office for the transaction of the business of the association and where regular meetings of the association may be held at stated intervals.

And further, this committee recommends that the chairman appoint a special committee to devise ways and means for the tentative organization of this Open Price Association, as herein outlined, and that this special committee make a report at the afternoon session of this meeting.

Your committee respectfully submits this report with its recommendations and moves its adoption.

(Signed) D. C. Haeger.
(Signed) J. L. Buckley.
(Signed) Iverson C. Wells.

This report was unanimously adopted and the following committee on temporary organization was appointed:

Iverson C. Wells, chairman,
Thomas C. Moulding,
Fred G. White,
A. E. Huckins,
Fred Titterington,
C. L. Smith,
John Berwald,
J. M. Powell,
A. W. Hillker,
Wm. Hale,
Frank P. Nixon.

The remaining time of the morning session was devoted to a general discussion of the Open Price Policy.

During the noon recess the committee on temporary organization had a lengthy conference and upon the opening of the afternoon session, Chairman Wells read a report which recommended that a temporary organization consisting of a president, a secretary and a treasurer be elected and that a committee to solicit members be chosen, this committee to begin active operations at once. "The Society of Clay Manufacturers and Dealers" was suggested as a suitable name for the temporary organization.

The report of this committee was adopted and D. C. Haeger was chosen president of the temporary organization, A. E. Huckins, secretary, and William C. Varney, of Chicago, the treasurer. The original committee, which was appointed by the Illinois State Association, was continued in force to solicit members and complete the plans of organization. This committee is composed of Messrs. Haeger, Wells and Buckley. Secretary Huckins was continued in an advisory capacity.

Immediately after the meeting adjourned the committee held a conference with members of the Chicago Face Brick Association and a meeting was called for that evening with the results outlined above.

It is proposed that this body of men form the initial association, eventually taking in all the face brick dealers and manufacturers in the Central West, if this is deemed practical. Later, after it has been placed on a working basis, the drain tile manufacturers, the hollow block manufacturers and the other clayworking groups will be taken in one by one, this, however, being dependent upon the practicability of the idea, so gained from the actual operations of the face brick dealers.

The meeting at the Hotel La Salle was one of the most interesting held by a body of clayworkers, both from a point of attendance and from the actual centralized interest. Every one of the several states represented—Illinois, Indiana, Iowa, Minnesota and Wisconsin, had a generous attendance, and the discussion of the Open Price idea brought forth a unanimous endorsement.

Device Measures and Mixes Accurately

Accuracy is fast becoming as great a necessity on the average clay plant as either economy or efficiency. The rule of thumb and guesswork in general are becoming as obsolete as open yard drying and scove kilns. Brickmakers whose product must be uniform in color, density or texture have long known that hit-and-miss clay feeding, affecting, as it does, the density of the clay-bar, made a product that could not be depended upon to come from one kiln after another in such shape and color that service could be made continuously from kiln to car, with no danger of "streaking the job".

The output of the Darlington Clay Products Company, at Darlington, Beaver County, Pa., has long been known for the excellence of its gray coloring. The brick is made from fireclay and the color is given it with manganese. It is unnecessary to add that the proportion of manganese added to the clay, affects the color most vitally. Accuracy in proportion and mixing is an absolute necessity. By the recent installation of two Poidometers, made by the Schaffer Engineering and Equipment Company, of Tiffin, Ohio, this accuracy is assured, and so delicate is the adjustment of these machines, that a never-changing proportion of 1½ parts of manganese to 298½ parts of pulverized fireclay is fed to the pug mill throughout the day. In addition to this, the steady feed of manganese and fireclay makes it possible to arrange for a regular quantity of water, and the clay-bar runs at even consistency, with an even mix of water, clay and manganese.

In the illustration a rear view of the twin Poidometers is given. The kind of work they are doing is best shown by the letter which the Darlington Clay Products Company has writen to Fairbanks, Morse & Co., of Chicago, who wrote for information on the subject. The letter is as follows:

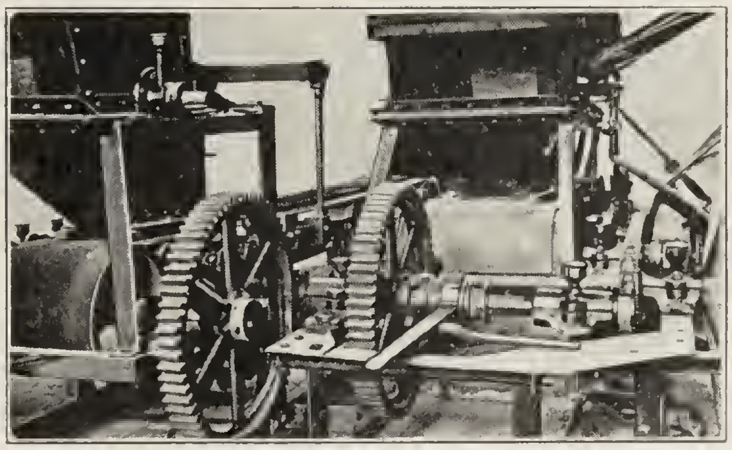
Fairbanks-Morse & Co., Chicago, Ill.
Gentlemen:

Replying to your favor of March 21st, regarding the Schaffer Poidometers, we beg to advise that while same have only been in operation a short time, they are giving us perfect satisfaction. The regulation is very accurate and frequent tests fail to show any difference in rate of flow and we would not hesitate to recommend them for any similar service.

We are using two machines coupled together, one for feeding ground clay and the other for feeding manganese. We are mixing the manganese at the rate of one-half of one per cent to one of clay. The percentages are very easily changed.

If there is anything further regarding these machines which you wish to know, please advise. Very truly yours,

(Signed) DARLINGTON CLAY PRODUCTS CO.



By eliminating the human equation of the man at the pug-mill through dispensing with him altogether, all doubt as to the uniformity of the clay-bar is done away with. And with a clay-bar that runs the same, day in and day out, drying and burning become a much more exact science. It all makes for uniform product.

CLAYWORKERS

Let the men who use clay products know who and where you are and what you make.

Our Subscription List includes Architects, Municipal Engineers, Contractors and Home Builders. A copy may be found in every Building Material Exchange in America.

Clayworkers, as you know, use clay products other than those made in their own plants. Clayworkers are, in many instances, influential members of City Councils and Boards of Public Improvement. It seems reasonable that they prefer burned clay in any form to competing materials.

Our Reciprocal Clay Products Advertising Section helps Clayworkers help each other.

A Display Advertisement in the Pink Section of Brick and Clay Record is inexpensive and you should investigate it at once. (Use coupon, page 825.)

This will bring your name prominently before a host of men who can benefit you.

And it will put your name, without any extra charge, in our Classified Index of Clay Products Manufacturers, under as many headings as you make different clay products or sell them. See page 856. This list is arranged alphabetically, by states and cities.

Men who are alive to selling possibilities in markets you do not reach are anxious to handle your material. They would write you if they knew what you make and where your plant is located. They read the Pink Section.

DEALERS

The purchasing end of your business is as important as the selling end.

New Clayworking plants are being started, new interests are being placed in charge. New products are being made. Changes in Freight Rates are inducing manufacturers to seek new markets.

The fact that you are the Oldest Dealer or the most important in your city will not, of itself, lead to these new men choosing you as their representative. It is not their fault that they never heard of you. Yet their account is worth more to you than a score of orders.

You cannot sell something you never had, and you cannot visit all of these plants.

A Display Advertisement in the Pink Section of Brick and Clay Record is inexpensive and you should investigate it at once. (Use coupon on page 825.)

This will bring your name prominently before every plant owner in the country.

The amount will be very small, compared to what you are spending to secure orders. It will help you to secure the material you need to fill orders when they come to you. It will list your name, without extra charge, in our Classified Index of Advertisers (see page 856), which is arranged alphabetically by states and cities.

The Pink Section of Brick and Clay Record introduces you to the men whose acquaintance is more vital to your success than any customer, architect or contractor whose regard you have won by years of painstaking service.

How the United States Helps The Clayworker

By

Prof. A. V. Bleininger, B. Sc.

U. S. Bureau of Standards

Most of the industries, whose manufactures are building and construction materials, have all the data as to the physical characteristics of their products, so that they know the possibilities of the same and the architects, contractors and builders, therefore, can use them intelligently. This is true of the steel industry, of the concrete industry and of the lumber industry.

The clayworker, however, is lacking in this information, and, until the United States Bureau of Standards, under the guiding influence of Prof. A. V. Bleininger, took up the subject of systematic testing of burned clay products, there was little data at hand.

Professr Bleininger read a very interesting paper at the recent New Orleans convention of the N. B. M. A., showing briefly just what the Bureau was doing and outlining its future work. This paper, which is taken from the copyrighted proceedings of the N. B. M. A. is given herewith.

PROF. A. V. BLEININGER.

THIS brief report is intended to inform your association of the various activities of the bureau. It is evident that owing to the limited means available it is impossible to undertake investigations along all the lines in which important questions await solution. The more important problems must be attacked first, as far as possible, with the means at hand. It is hoped that co-operation of the bureau with the ceramic industries will become still more intimate and close. What the Department of Agriculture is doing for the farmer this bureau should do for the manufacturer. Probably the most extensive piece of investigation in the interest of the clay industries is the co-operation work with the National Brick Manufacturers' Association relating to the testing of brick masonry. In brief, this investigation deals with the erection of piers 10 feet high and 30 inches by 30 inches in cross section. In this connection the construction of 144 such piers is planned, comprising four grades of brick from soft to vitrified, according to the grades provided in the specifications for building brick by the American Society for Testing Materials. Furthermore, these four grades are to be obtained from four districts, the territory adjoining New York City, western Pennsylvania, the Chicago district, and the southern states. These brick are to be laid up in three types of bond as follows: Headers every other course, headers every sixth course and the common construction in which the outside shell is laid up first and the interior filled in with the proper use of mortar. Likewise, three kinds of mortar are to be employed: Cement mortar, composed of 1 part Portland cement and 3 of sand; cement-lime mortar, composed of 85 per cent of cement and 15 per cent of hydrated lime mixed with sand in the proportion of 1:3, and lime mortar, consisting of 1 part of high calcium lime and 6 of sand. These mortar mixtures are carefully weighed out and every precaution taken to insure proper preparation. The bricklaying is in charge of Mr. Nolen, head instructor in bricklaying at the Carnegie Technical Institute, Pittsburgh, a man who has had many years of practical experience.

This elaborate investigation is now well under way but it would be useless to report to you the results of the tests made so far, as they would have little value until at least one set of thirty-six piers had been tested. It happened that the soft burned brick were first built, and hence the results if given out without at the same time reporting upon the hard burned products might be misleading. At the time of your next meeting a very complete, illustrated report will be submitted. In the testing of the piers all proper precautions are being taken and careful measurements made of the deformation occurring both longitudinally and transversely. Instruments reading to one ten-thousandth part of an inch are being applied for this purpose. The piers made up with cement mortar are tested after thirty days, those in which lime mortar has been used after three months. They are built upon a steel plate and when ready for testing a top plate is placed in position, secured to the bottom plate by heavy steel rods. By means of a ring, which is part of the top plate, the piers are lifted by a traveling crane and placed in the testing machine. The latter has a crushing capacity of ten million pounds.

The testing program was prepared in conference with your technical investigation committee, of which Professor Orton is chairman.

The investigation is undoubtedly the most extensive and elaborate one ever attempted, and when completed it is bound to furnish valuable data to engineers and architects. The report will be printed by the government and the information made available to every citizen. Due credit will, of course, be given to the National Brick Manufacturers' Association, whose name will appear in the title. I believe it is a piece of work which will create widespread interest and will reflect credit upon your organization.

Further work has also been done in the study of vitrification, especially with reference to the softening of the shales or clays at the finishing temperature. By subjecting bars of clay to a tensile stress of five pounds per square inch, at various kiln temperatures, the softening was measured by means of the elongation, and some interesting facts brought out. These results have been reported before the American Ceramic Society and will be made available to all of you through a bulletin to be issued by the Bureau of Standards. Similar work will be published in connection with American porcelains.

The investigation of paving blocks taken from the streets of various cities has been completed. It deals not only with the quality of the blocks used in pavements as old as nineteen years, but will throw some light also on the method of construction and the comparison of the tar and cement fillers.

Furthermore, an extensive examination of building tile and fireproofing is under way which is intended to cover this field quite fully. A special furnace is under construction in which columns and arches as well as individual specimens can be tested, both under pressure and at high temperatures.

A broad investigation of the plasticity of clays is being made in which this fundamental property is being studied from various angles. Part of this work has already been reported before the American Ceramic Society.

The subject of the drying of clays is also receiving attention. A laboratory drying oven has been built in which drying of a brick may be studied accurately under conditions of constant temperature, constant humidity and constant flow of air. In this apparatus both the shrinkage and evaporation of ware are recorded automatically, at any instant, by clock-driven charts. In this manner it is expected that the critical drying points of clays may be determined.

The firing rings which, during the past year, have been introduced in many plants for the regulation and control of burning, have been standardized, so that the temperature corresponding to any number indicated by the instrument may be known. The strong and the weak points of this system of trials have been brought out.

Further work has also been done in connection with the casting process, which is bringing about such a decided change in the manufacture of sanitary ware. The principles underlying the use of the chemicals, carbonate of soda and silicate of soda, in reducing the water content and shrinkage are being brought out, so that the process may not only be understood more clearly but that it may be extended to other industries, especially the manufacture of refractories.

An attempt is likewise being made to replace the cumbersome freezing test of clay products, stone and concrete, by a quicker method by the use of solutions which when absorbed crystallize in the interior of the specimens and thus exert pressure within the structure, destroying weak and inferior products. Such cheap salts as sulphate of soda, thiosulphate of soda and magnesium sulphate are being used. There is a constant demand on the part of many engineers and architects for such a quick test.

It is a pleasure to report also that the co-operation of eighteen university and other testing laboratories has been secured in the testing of building brick in relation with the framing of brick specifications by the American Society for Testing Materials. This general interest in brick is very gratifying and it is sincerely hoped that those members of the N. B. M. A. who are requested to furnish the forty brick needed from each of a considerable number of plants will respond generously and promptly. It is part of the work which is being carried on for the benefit of the industry as a whole and should receive the support of every manufacturer.

Numerous smaller problems come up almost daily in our clay products laboratory and it would take me too long to enumerate them.

During the past year it has afforded us considerable pleasure to note that the universities are aiming to extend their valuable influence more directly to the men operating the plants of the industries by means of short industrial courses, and it has been a pleasant task to be of service in this connection.

To judge from our correspondence and the personal visits of many manufacturers, it seems the industries are realizing that the government laboratory at Pittsburgh is at their service and this is as it should be. The country at large and the industries in particular can best be served by close and intimate co-operation with the bureau whose aim it is to obtain new facts and correlate old ones for the benefit of the important field which it endeavors to cover.

Brown Pyrometers in Book Form.

The Brown Instrument Company has issued a sixty-four page catalog of pyrometers that is a marked achievement in trade literature. Sixty-four pages are devoted to an elaborate description of the design, construction and use of pyrometers, and a copy should be on the desk of every plant manager. The Brown Instrument Company will send a copy from any of its offices in Philadelphia, New York, Pittsburgh or Chicago, to interested parties who write, using a business letterhead.

New Building Supply Concern in Detroit.

The merging of the business and interests of the C. H. Little Company and the Malcomson-Houghton Company, builders' supply and coal dealers of Detroit, Mich., under the name of the United Fuel & Supply Co., gives to Detroit one of the largest and most efficient organizations in the country devoted to the sale of these commodities. The new concern represents an investment of $2,500,000 and will have its offices on the second floor of the Free Press building. J. C. Adams will be in charge of sales in the building material department.

Who's Who

A Page of Presidents whose Activities Extend from Cape Cod to Lake Michigan

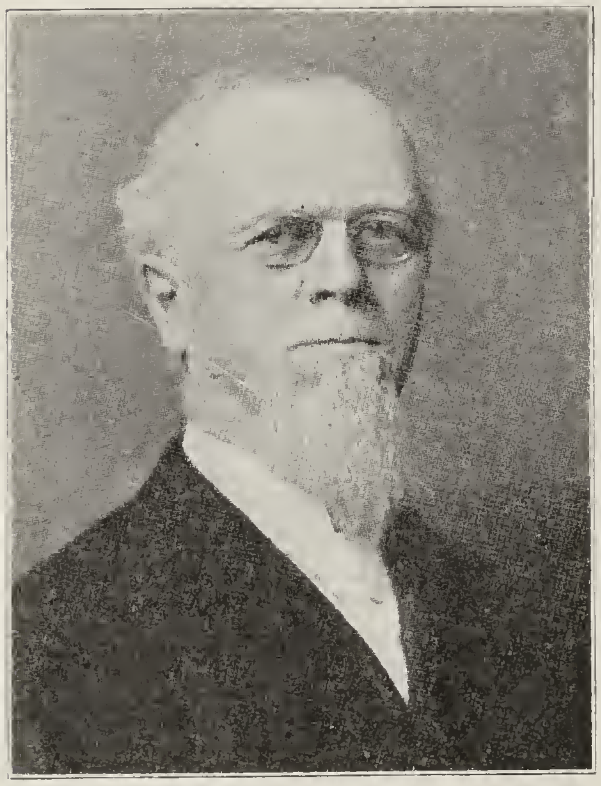
Martin N. Kimbell.

Martin N. Kimbell, president of the Kimbell-Hill Brick Company, of Chicago, despite the youthful lines of his face, faithfully reproduced by a conscientious photographer, owns up to twenty-three years' experience in the brick selling game, the whole time being spent in the "I Will" city. The fact that he was brought up in the business has something to do with the fact, perhaps, that its various vicissitudes have left no scars on Martin's genial temperament. He knows the brick game from the ground up, having started as sample boy and general help in the office of the Chicago Hydraulic-Press Brick Company, with which concern both his father, Martin N. Kimbell, Sr., and his uncle, S. S. Kimbell, were connected.

Fifteen years after that, the younger Martin joined the forces of the newly formed S. S. Kimbell Brick Company, and for eight years sold face-brick in Chicago, covering, at different times, the north, northwest, west and southwest sides. His personal acquaintanceship among Chicago's builders is immense. His willingness to give every one a square deal has made him an army of friends.

The Kimbell-Hill Brick Company, of which Martin N. Kimbell is president, is of the vintage of 1914. It enters the brick-selling field of Chicago with the good wishes of a host of men prominent in Chicago's building and architectural circles, not to mention many men who make face-brick and look to Martin to sell them.

George M. Fiske, president of Fiske & Company, Inc., of Boston and New York, while laying claim to being one of the veterans in the brickmaking field, occupies a niche in the clayworkers' Hall of Fame, as one of the most progressive men now in the profession. When he was elected to the presidency of the National Brick Manufacturers' Association in 1902 he admitted a thirty years' experience in making imperishable constructional materials from burned clay. During that time, he had made terra cotta and face-brick, in the latter field being one of the first to produce the so-called "fancy" brick of light shades. A factory which he built at Dover Point, N. H., was the first to use the new system of handling brick in quantities, by the means of a traveling crane and great steel fingers that lifted 1,500 green brick into and from the kiln. The same system is the newer generation, his pioneer innow in use in the large brick yards in Chicago and in various points in the Far West. The Fiske plant was destroyed by fire on Dec. 28, 1906. Shortly after this, Fiske & Company, Inc., launched the first national campaign of advertising ever done by a face-brick concern. Pinning his faith to the then new rough texture in face-brick George M. Fiske fathered the "Tapestry" idea and, backing it with his dollars, made the name "Tapestry" known in every nook and corner of the land.



George M. Fiske.

George M. Fiske is of the older generation of clayworkers, but manages to keep abreast of the times.

Walter M. Hodges.

Walter M. Hodges, president of the Tuna Valley Pressed Brick Company, of Lewis Run, Pa., state vice-president of the National Brick Manufacturers' Association and a director in the Eastern Paving Brick Manufacturers' Association, is a much better looking man than this picture indicates. Among his other possessions is the famous "Hodges' smile" that has illuminated brick conventions for many past years, and the equally well known "Hodges' persuasiveness" that had much to do with the success of the two face-brick plants with which he was connected, before he went into the paving brick game.

Walter M. Hodges has always been a consistent booster for clay products. He is a believer in printers' ink, and was one of the first men in the country to use a brick label that told something about the brick, rather than about the concern that made or sold it. His analytical mind determined that the architect was more intimately interested in the material than in the man who made it—a theory that was entirely new in the brick selling game.

In the field of paving brick, men like Walter M. Hodges will find ample room for initiative and inventive genius. Printers' ink, while a poor binder for paving block, will do much to promote the permanent roadway and with it, the prosperity of the men behind the paving block. But printers' ink, like mortar, must be mixed with brains, and of these, Walter M. Hodges has some and to spare.

You want brick pavements, even though you do not make paving block.

Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Doby Clay Burns Many Colors.

340. *Arizona—In burning our brick this summer I found that there were a few in each kiln which were very near the color of gold. These brick were near the fire but not touching it. The brick are supposed to burn a white but they burn white, blue or red, according to the distance from the fire, with a few golden brick mixed in. The clay used is a red doby, taken from the top of the ground and has sulphur and some other minerals in it. The kilns used are the open ones of which the casings are torn down after the kiln is burned. I wish to ascertain if I had a down-draft kiln could I burn a brick so that it would be of uniform golden color. If I should send a sample of the clay and a few brick, could you give me more expert advice? Do you know of any brick that does burn a rich golden color?*

From the information given we would say that the color phenomena shown by your brick when burned are due to "flashing." Under normal conditions of burning, the brick develop their normal color, white—or rather, a light buff, we presume. This color is developed when the burn is made under oxidizing conditions. The reds and golden yellows are due probably to "flashing," as mentioned above. Flashing takes place when oxidizing conditions are followed by conditions strongly reducing and this in turn followed by oxidization during cooling. By this process the coloring qualities of the iron are made more evident and various color tones are produced depending upon the amount of iron present and the nature of the clay. The more frequently alternating oxidizing and reducing conditions are brought about the more easily do the colors develop. The blue color spoken of is due no doubt to strongly reducing conditions. These brick in some way or other have not been oxidized following the reduction and can hardly be spoken of as being flashed. The remedy, of course, is to endeavor to avoid reducing conditions as far as possible. Keep your fires clean. It is difficult to say whether or not your brick would develop a golden yellow color if burned in a down-draft kiln. Submit your sample to some competent expert for thorough testing.

There are any number of clays that develop a color on burning similar to golden yellow. Most any No. 2 or No. 3 fire clay behaves in this way. Any of the ceramic departments of the state universities will make the tests for you for a nominal fee. They would require about 1,500 pounds of material to make a thorough test. Prof. Paul Teetor, of the University of Kansas, at Lawrence, Kans., has a most excellent testing laboratory, and is nearest to you.

To Test Red-Burning Sand.

358. *British Columbia—We make common brick by the soft mud process, but up to date have been unable to get a red-burning molding sand. We believe, however, we have some located, but as our plant is shut down for the Winter we have no way of testing it. Will you kindly inform us the best method of ascertaining whether our samples possess the desired red-burning quality?*

You can ascertain whether or not your sand is red-burning by subjecting it to a temperature of good red heat. If you have no better means available, you could use even the fire-box of the cook-stove.

Manufacture of Terra Cotta.

347. *Washington—I am a clayworker culling mitres in a terra cotta shop and I would like to obtain a book which treats on the construction of terra cotta and which tells of its manufacture and how it is set, and which gives wall construction.*

There is no publication listed that treats exclusively on terra cotta construction or manufacture. The National Terra Cotta Society, W. D. Gates, secretary, Peoples Gas Bldg., Chicago, is preparing such a book, but we do not believe it is ready for distribution. "Masonry Construction," by Phillips-Byrne, $1 postpaid, and "Building Superintendence," by Nicholas, $1 postpaid, are listed by our book department, and treat generally on the subject of all sorts of construction. We know of no book dealing with the manufacture of terra cotta. In the Nov. 14, 1913, issue of "Brick and Clay Record" there appears an article on "The Manufacture of Architectural Terra Cotta," by A. Heubach, which covers this subject very satisfactorily in a general way.

Burning Crude Oil Versus Coal.

368. *Minnesota—Please give me information relative to comparative value and cost of crude oil and coal for fuel, the coal costing F. O. B. here $3.55 per ton of a not very good quality. I believe I could burn crude oil to an advantage in our boilers and seven kilns and without a very large outlay.*

The Crookston Brick & Tile Co., at Crookston, Minn., and only a few miles to the north of you, used to burn with wood and coal. This concern uses now about 30 gallons of crude oil against a cord of wood per thousand brick. The wood cost $4.00 which did not include cost of firing and other expense not needed in oil burning. As practice is better than theory we submit this information.

Paint for Brick Buildings.

351. *Minnesota—There are several common brick buildings in this city which the owners want to have painted. Do you know of any brick paint that has been used and found satisfactory?*

In the first place brick buildings should not require painting—not even those of common brick. There was a time years ago when common brick were burned so poorly painting was believed necessary to make them impervious. Few brick made today need painting. However, as you ask a definite question and this is not to be a sermon, but an

A quiet tip on proposed paving may help a fellow clayworker to a good job.

answer, we beg to advise that any high quality mixed paint will be satisfactory. Any good house paint, is all right and the so-called barn-reds are not only more economical but answer the purpose. The house paint usually sells at $2 per gallon and may be reduced on an average of one-half gallon of linseed oil to the gallon of paint. The barn-red paint usually retails at $1.25 per gallon and will stand an equal amount of reduction.

As to Orsat Apparatus.

346. *Washington—Does the book by Booth on "Smoke Prevention and Fuel Economy" give any directions for running Orsat samples? I know the practice fairly well, but do not understand the theory or the why of it. If you can tell me where I can get this information I will be greatly obliged.*

In the Jan. 6, 1914, issue of "Brick and Clay Record" there is an article which tells in detail how to manipulate the Orsat apparatus, also giving the calculations involved, as well as the reasons for the different steps.

Steam Shovel Publication.

361. *Illinois—Will you give me name and address of a paper published in the interest of dredging? Several years ago the writer saw a machine at work in the Winnebago swamps of Lee County. It consisted of two large scrapers working in a semicircle delivering dirt on both sides of ditch, when one scoop was dumping the other was loading. If you know the makers of this machine, their address will answer, as I only wished the paper in hopes of seeing their advertisement.*

The above question has appeared in the Feb. 17 issue and was answered to the full extent of our knowledge. Since we have learned that a publication, "The Steam Shovel and Dredge," is printed at 105 West Monroe St., Chicago.

As to Book on Refractories.

367. *Ohio—Have you a prospectus or any data that would give the contents of your publication, "Refractories and Furnaces," by Havard? Do you know it to be A No. 1?*

We regret that we have no prospectus or descriptive matter for the book "Refractories and Furnace Materials," but this publication, in our opinion, is the best on the subject treated, and we recommend it to all of our readers. The price of the book is $4.00, postpaid.

Salesman Wants to Study Building.

397. *Ohio—Give me an idea as to the contents of "Building Materials" (Middleton) listed by you. I have resigned my position as manager of our plant to take charge of the face brick department of a large building material house and wish to get some books on the subject of building material and construction.*

Probably "Building Superintendence" by Nichols and "Masonry Construction" by Phillips-Byrne, would suit you much better than Middleton's "Building Materials." "Building Superintendence" goes thoroughly into the subject of construction work, giving the preliminary requirements, the superintendent's relations to owner and contractor, the understanding of drawings and specifications, rejection of materials, selection of site, staking out, etc. Another chapter takes up the framing and exterior finish and still another the interior finish and appointments. There are chapters devoted to construction of city buildings, fireproof buildings and all materials are covered in a very comprehensive manner. There are a number of drawings, plans and other illustrations, which make the book a very valuable one. The price of this book is $1.50, postpaid. "Masonry Construction" is a sort of guide to the approved American practice in the selection of all sorts of masonry materials, including, of course, brick and terra. We consider this book, in connection with the one mentioned above, as being just about what you want.

Silo Block of Common Clay.

385. *Illinois—We have a tender clay which makes good brick and drain tile. Can good silo block be made of common clay?*

There should be no special reason why common clay would not be suitable for the manufacture of silo block, if you are using it successfully in making hollow ware. A good silo block, however, requires a little harder burning. Will your clay stand more?

Dryer is Too Short.

349. *Minnesota—I am having some trouble in drying my brick. I employ a waste heat dryer, taking the heat from the kiln with a 14-foot fan and use a 6-foot fan on the back end for ventilation, which is the only means I have of carrying off the moisture. The flue from the kiln to the dryer is 5 ft. by 6 ft. and has openings into each track 16 in. by 18 in. The tunnels are 80 ft. long, two tracks each tunnel, and we have 18 tracks. We use double deck cars and load 400 paving brick on a car. We are unable to draw more than 30,000 thoroughly dried brick each day and carry about 200 degrees temperature on the hot end of the dryer and sometimes the kiln end will show as high as 180 degrees. How can I overcome this?*

There is indeed something radically wrong with the operation of your dryer, if you have a difference of only 20 degrees F. between the hot and cold ends. This fact plainly shows that you are by no means getting the full benefit of your heat. However, before attempting to definitely say what the trouble is due to it will be necessary that more data be given. Let us know the approximate humidity of the air leaving the tunnels. You can determine this handily with a wet and dry bulb thermometer. Give us some accurate figures relating to the temperature of the hot and cold ends. You are evidently working with far too great a velocity of air and your dryer is also too short to attain the best results. It appears that the heated air passes thru the tunnel so rapidly that it does not impart its heat to the brick. Your difficulty certainly is not due to the fan being too small. A 14 ft. fan is amply large to dry 100,000 brick per day.

A Course by Mail in Ceramics.

352. *Canada—Can you inform me where I can obtain a course by mail in ceramics—one that would give me the full knowledge of brick manufacture, terra cotta, glaze work and pottery? I am a brick manufacturer with no time to go to school. Therefore, I must look to the mail courses if there are any to be had.*

There are no correspondence courses. About the only suggestion we can make is for you to attend the short courses given by the ceramic departments of the universities every year. These run usually two weeks and are held in midwinter. Your new ceramic department at the Toronto university undoubtedly will have such a course every year. The University of Illinois, at Champaign, Ill., the Ohio University at Columbus, Ohio, and others in the United States have held their courses for this year.

Dry Press Brick Check.

331. *Texas—We are running a dry press brick plant, operating two presses, one a Ross-Keller, triple pressure and the other a Grath five-mould special. We have been having*

considerable trouble with our brick air-checking shortly after it comes from the press usually from one-half of an hour to two hours and this trouble has been more noticeable of late The air-checking does not occur at all times but is worse when we have a cold, dry, strong north wind. Wind from any other quarter apparently does not check them so much and when the air is damp and foggy, there are no checks at all. Our kilns are not protected from the north winds. The air checks do not seem to burn out. The clay burns a yellow or buff color, which is very pretty and if we could only get rid of the checks, we would have as fine a brick as is manufactured in this state. The brick takes considerable heat, requiring at least 2,000 degrees. We use two barrels of oil and the moisture we use is from six to ten per cent.

The trouble you are experiencing, due to the development of air cracks, is a common one to the manufacturer of dry pressed brick, especially where the material used is practically non-plastic. Two possible remedies suggest themselves. One is to store the clay as long a time as is practical (two or three days) before using it. The clay must, of course, be in the moist condition when stored, just about as it will be when used at the press. If your plant is small, you probably will not be able to store it longer than 24 hours but even this short a time may help you somewhat. The second suggestion is, before setting to put the brick into a warm, damp compartment where little drying will be accomplished but yet where the brick can be warmed up. When run out of this damp closet, the ware should show a lesser tendency to develop the air cracks of which you speak.

This question was submitted to other authorities on the subject, who replied as follows:

Anton Berg, of the Berg Machinery Manufacturing Co., Toronto, makers of the Berg dry press, offers this suggestion: "In some cases by having a steamer and steaming the clay so that it will be warm and dry inside of the brick, has proved successful, and again, in some cases, weathering is a remedy for air-checking."

Ellis Lovejoy writes: "As a rule the finer ground the clay is and, in consequence, the greater the density of the brick, the greater is the checking difficulty. There are very few dry press bricks which will not air-check when left exposed to the air or sun, particularly when the air has very little humidity, or, in other words, when it has great drying capacity. It is simply an illustration of the surface drying faster than the moisture within the brick can be brought to the surface and this surface drying causes shrinkage on the surface and the strains introduced by this shrinkage are counteracted by the numerous cracks. When the bond is once broken by these cracks, it will not knit together in the burning. Many years ago the manufacturers of dry press bricks began the introduction of dryers in order to reduce the time of drying in the kilns, but almost without exception the dryers were found to be a failure simply because the brick would check more or less in the dryer, but would not check in the kiln and in consequence the manufacturers returned to the usual method of setting the brick from the machine direct into the kiln. The only method we can suggest in this instance is to protect the brick from sun and wind. This is not always easy to do in updraft kilns and we have found it necessary in using such kilns for dry press brick to follow the setting very closely with the platting and in a scove kiln it would be necessary to keep the scoving up to the setting. If the kilns are scove kilns and it is not practical to keep the scoving close to the setting, probably dampened burlaps hung over the exposed brick would protect them from the action of the wind and in the kiln, as the setting progresses, the exposed benches can be similarly protected."

Recipes for Enameling Black, Blue and Green.

399. *Pennsylvania—Prof. R. T. Stull gives us some very valuable information on "How to Enamel Brick," in his article printed in "Brick and Clay Record," but he does not say where the recipes could be secured to enamel black, blue and green.*

We asked Professor Stull to supply us with the desired information. Here is his answer in full:

"There are two methods of producing an enamel surface on brick, one is by applying an engobe or slip to the face of the brick then applying a clear glaze over. The other method is to apply an opaque glaze or enamel to the face of the brick without using an engobe or slip.

"The method of procedure for making colored enamel brick will depend upon whether the slip and glaze method is used or whether the enamel proper is used. The colors are produced by the use of either raw oxides or prepared stains.

"If a coloring material is added to a clear glaze and goes into solution during fusion of the glaze it will give an uneven color because the color will be dark where the glaze is thick and light where the glaze is thin. In order to obtain a uniform color where the slip and clear glaze method is used for making enamel brick, the coloring agent is added to the slip or engobe where it is practical to do so. Sometimes part of the color is added to the slip and part to the glaze.

"Where the slip is dispensed with and the opaque glaze or enamel is applied directly to the face of the brick, the color, when added to the enamel, will be uniform whether the enamel be thin or thick.

"Some of the recipes of stains which may be added to an otherwise colorless glaze enamel or engobe for producing blues, greens and blacks are:

BLUES

No. 1

English China Clay	18
Cobalt oxide	12
Zinc oxide	6
Potters flint	18
Saltpeter	6

No. 2

Aluminum oxide	205
Cobalt oxide	165
Magnesium carbonate	168

No. 3

Cobalt oxide	250
Potters flint	165
Carbonate of Potash	42
Saltpeter	42

No. 4

Aluminum oxide	40
Cobalt oxide	5

No. 5

Aluminum oxide	30
Zinc oxide	6
Cobalt carbonate	4

No. 6

Cobalt phosphate	183
Aluminum oxide	103

No. 7

Zinc oxide	203
Cobalt phosphate	345
Aluminum oxide	515

No. 8

Cobalt oxide	166
Chrome oxide	76
Aluminum oxide	155

GREENS

No. 9

Nickel oxide	150
Chrome Oxide	76

No. 10

Bichromate of potash	36
Fused calcium chloride	12
Potters flint	20
Potters whiting	20
Fluorspar	12

No. 11

Barium chromate	46
Potters whiting	34
Boracic acid	20

No. 12

Chrome oxide	120
Potters flint	395
Potters whiting	5

No. 13

English china clay	255
Chrome oxide	150
Potters whiting	35

No. 14

Chrome oxide	128
Cobalt oxide	1
Potters flint	43
Borax	4

BLACKS

No. 15

Red oxide of Iron	40
Chrome oxide	76

No. 16

Red oxide of Iron	80
Chrome oxide	76
Cobalt oxide	20

No. 17

Chromate of Iron	445
Cobalt oxide	55

No. 18

Chrome oxide	137
Red oxide of Iron	192
Oxide of Manganese	140
Cobalt oxide	50

No. 19

Red oxide of Iron	172
Chrome oxide	172
Oxide of Manganese	40
Cobalt oxide	16

"The colors should be weighed from the dry powder materials and thoroughly mixed by grinding. These should be calcined strongly and ground wet in a ball mill fine enough to pass a 150 mesh screen. The ground colors should next be washed four or five times by decantation and dried ready for use.

"In order to produce the shade of color desired add from 1% to 10% of the color stain to the glaze or enamel or from 2% to 15% to engobes.

"The addition of the stain to the glaze or enamel frequently throws the glaze or enamel out of balance. Some stains render the glaze or enamel less fusible while others lower the fusion. Usually stains are basic in character and in order to get a balance colored glaze it is necessary to reduce the base in the glaze, such as lowering the whiting or zinc or lead or alumina or similar results results may be had raising the silica (flint) of the glaze.

"In producing green colors by the use of chrome oxide or stains containing it, the original glaze or enamel to which the coloring material is added should not contain zinc oxide. If zinc oxide is present it tends to destroy the green color and produce an uneven dirty brown.

"On the other hand, zinc oxide intensifies the blue color of cobalt oxide and is therefore a valuable component in the production of cobalt blues.

"Black is one of the most difficult to produce of all the colors in the ceramic category. Very few ceramic colors can be classed as jet black. They are as a rule either blue-black, green-black or brown-black when placed on a white body. Blacks should be placed over a colored body either a buff or a red."

Kiln Shed With Sliding Roof.

282. *Canada—We burn brick in common scove kilns, using a temporary roof. We are considering erecting a permanent kiln shed with a sliding roof—that is, a roof with movable sections on rollers which easily can be removed from one part of the shed to another, as required. Do you know of any firm using such a roof from whom we could get a plan?*

We know of no firm making roofs of this type. Several years ago, Asa C. Ernest built such a shed for a plant at Macon, Ga. We have made an effort to get pictures of this but find that the sheds have been torn away. Mr. Ernest writes: "These sheds were built in twelve-foot sections with post cut even at top with heavy stringers and a light rail on top. I used small iron wheels with a groove in them. The rafters were stayed with a seven-eighth iron rod. I used galvanized iron for covering. While I got good service out of this arrangement, I only had three kilns, and I doubt the wisdom of any yard that makes a considerable quantity of brick to use it. Any yard making more than 25,000 brick will find the movable shed impracticable."

Salt Glazing Hollow Building Block.

381. *Texas—How many tons of salt are necessary in glazing hollow building tile made from a fire clay?* (2) *We use a round down-draft kiln containing 100 tons of hollow building tile. At what temperature should the tile be burned before the salt is applied?* (3) *How long should the heat be kept up before closing the kiln?* (4) *What should be done with the drafts on the kiln at the time of salting?* (5) *How wide apart should the tile be set to insure at least 95% and if possible 100% salt glazed ware?*

Some clays require salting more times than others and for this reason no figure as to the amount required will suit all cases. However, about 150 lbs. of salt per 100 tons of ware probably represents an average figure. (2) The ware in question should always be at a practically maturing temperature before an attempt is made to salt. (3) The fire should not be kept up much longer after salting—three or four hours and not longer than six hours. (4) The manipulation of the draft depends upon the amount you are carrying. Generally speaking it should be cut when salting. It must not be thought, however, that the draft should be completely shut off, for if this were done it is apparent that the salt vapors would not be drawn down through the ware. On the other hand if the draft be too strong the salt fumes will be drawn out through the stack so quickly that they do not have time to act on the ware. (5) It is an impossibility to state just how far apart the ware should be set to obtain 95 to 100% good salt glazed ware. The essential thing is to see that adjacent tile do not touch, thereby preventing the salt fumes from entering between them. It is also necessary that all the slits in the kiln floor be well open, for if otherwise the ware above it would be apt to be poorly glazed or not at all.

Diminishing Flash.

383. *Ohio—We are making a high grade face brick from a red burning shale and burn with coal in downdraft kilns. The top eight or ten courses of brick have a flash around the edges or an apparent over-burn and the brick are heavier as we near the top courses. While these make a very beautiful red center brick, we would prefer to have a uniform red over the entire face. What could I do to overcome or even diminish this flash?*

The trouble you are experiencing in the top eight or ten courses is due to reduction. As a remedy we would suggest that in your fire boxes you make use of a coking plate. This is simply an iron plate on which the coal is thrown, where the volatile hydro-carbons are distilled off (coking) and the coal (coke) then pushed on into the fire. This avoids the periodic reducing conditions apt to ensue if the coal is thrown directly into the fire, where the hydro-carbons distill off with a "rush" and ignite. The coking plate brings about a more uniform combustion.

Cost of Electric Power Per Thousand Brick.

330. *New York—What is the cost of electric power per thousand for soft mud brick? We have a Wellington Monarch machine of 30,000 daily capacity, and as we have been paying from 2¼c to 2½c per kw.-hour, our brick, which is soft-mud, costs us 20c per thousand for power on our machine. As the power company has advanced the rates we want to use these comparative figures for the purpose of trying to get a reduction. What is the usual power cost to make one thousand brick on one machine, giving the figures per kw.-hour as well as the cost per M.*

We have communicated with several plants operating under similar conditions but have received but two replies. Hilker Bros. Brick Mfg. Co., Racine, Wis., write:

"We are using a Pott's soft-mud machine and are making 24,000 brick per 8 hours per day. We are using a pugmill, and a disintegrator and a winding drum to haul the clay from the clay pit we also have a conveyor 500 feet long to carry the mould along the yard. This machinery is all driven by one engine. We use steam power and we use about three-fourths ton of coal per day, which costs us $3 per ton delivered at our boiler room, so that would cost us about .09½ cents per thousand for coal and, figuring about .03 cents for oil for engine, so that would make our cost per thousand brick about .12½ cents for power. This is what we suppose your subscriber in New York wants to know."

Voelker & Groff, proprietors of the Winona Brick Yards, Winona, Minn., write:

"Our conditions are somewhat different than your subscriber's. We run our Wellington Monarch machine with one motor and cable conveying machine with another motor

The lasting qualities of burned clay pipe and tile are arguments for brick.

pumping water with another large motor on our drag line scraper for scraping our clay motor on centrifugal pump for pumping water out of clay bank. We pay for our power by a sliding scale. The minimum charge is 2½ cents per K. W. Our power costs us 0.234 per M. brick."

Cost of Electric Current.

353. *Nebraska—How much per kilowatt does electric current cost at brick plants bought from power stations, either municipal or private, generated by steam power? We have electric drive but believe our price for current is high. We run a Fate bottom dump car, standard size; Fate winding drum, American Clay Machinery Co.* 18-*inch disintegrator,* 44-*ft. conveyor,* 7-*foot pug mill, a No.* 218 *American Clay Machinery Co. machine and cutting table, making brick or block. We use on an average* 40 *kilowatts an hour, making about an average of* 4,000 *common brick per hour, or* 1,000 5x8x12 *block. This average of power varies some. It takes more if the clay is worked somewhat stiff. We have a sliding scale on electricity from* 6 *to* 7 *cents down to* 4 *cents per kilowatt. We have a* 100-*h. p. Westinghouse motor,* 2,200 *volts alternating current.*

Local conditions and the nature of the clay are sometimes determining factors in the amount of current necessary per thousand brick. Likewise these things determine costs. The Albany Brick Company, Albany, Ore., operates a Potts disintegrator with clay elevator, one 8-ft. clay pug mill, Bucyrus Acme brick machine, capacity 25,000 per day. During the period of four months operation the average kilowatt-hours per thousand of brick made was 8.16. We do not know the rate of power but if you figured 2½ cents per kilowatt-hour, the cost per thousand is slightly over 20 cents. The Enid Vitrified Brick & Tile Company, Enid, Okla., are using a motor for operating one 9-ft. dry pan, one mixer, a six-mold brick machine, capacity 30,000 per 10 hours, one 2,000-lb. hoist elevator and conveyors. Tests made on this plant show 11.2 kilowatt-hours per 1,000 brick.

We refer "353 Nebraska" to the answer given "330 New York" elsewhere in this department.

Book on Fire Brick Manufacture.

342. *New York—We are interested in securing a book or any other publication with reference to the manufacture and general uses of fire brick and ask if you can advise us of this.*

"Refractories and Furnace Materials," by F. T. Howard, is listed by our Book Department, at $4 postpaid. It is considered the best work published on the subject.

Who Makes "Lenox" Brick?

440. *New Jersey—Can you tell us the factory in New Jersey that makes a soft-mud brick stamped "Lenox"?*

Will some reader answer this question for our correspondent?

ANSWERS BY READERS.

Dryer Trouble.

214—This New Jersey reader had trouble with his burning. We believe his trouble is caused by using the clay in a too wet condition. One of our rotary dryers would eliminate the trouble by furnishing clay carrying a specified moisture that would burn uniformly. Many clay companies are adapting clay dryers to overcome trouble of this kind.—American Process Co.

Home-Made Pallets.

In answer to inquiry re home made pallets, I beg to offer a suggestion which I have tried and proved to be O. K. A good way to make pallets is to make them out of lath, using seven laths to each pallet. Cut your laths 34 inches long, using four of the short pieces for cross pieces on your pallet. The other three are waste. Now build a templet on which to make your pallets. Get four pieces of heavy strap iron and place one at each end of pallet and one eleven inches from each end. Secure these in place. Now lay your cross pieces on your irons, then lay your long lath on top, spreading each lath one-eighth of an inch. Use three-penny nails and drive them through and they will clinch on the iron. Put two nails in each lath and cross piece, and you will have a pallet that will last for years and not warp. It is also very light and the air will pass through the cracks between the lath, an advantage over a solid pallet. A handy man will make 200 of these pallets a day.—N. Hermes, Redcliff, Alberta, Canada.

A Correction.

354. Arizona—On page 591, March 7 number, you erred in giving the address of the "Bungalow Magazine" as Los Angeles. It is published by the Bungalow Publishing Co., 421 Leary Bldg., Seattle, Wash.—"The National Builder," by Charles A. Miller, Managing Editor, Chicago.

INFORMATION WANTED.

As to Silica Brick.

246—We would like to be placed in correspondence with the New Mexico subscriber, who, in December 16 issue, asked about a book on silica brick.—Jackson & Church Co., Saginaw, Mich.

246—Will you kindly forward the enclosed letter to your New Mexico correspondent who was interested in silica brick?—C. L. Baird, 413 Shoaff Bldg., Ft. Wayne, Ind.

We complied with both of these requests immediately upon the receipt of the letters.

As to Glazed Brick.

255—On page 360 of the Feb. 3 issue you have a query from 255 Oklahoma in regard to the manufacture of glazed brick. I am writing to him and wish you will kindly forward the letter to him.—James Witty, 1202 Third St., Beaver, Pa.

We have complied with this request.

Wants a Trade Journal.

387—Kindly send us a trade journal devoted to ceramics, terra cotta, pottery or any other clay products.—Engineering Agency (Inc.), Chicago.

The only trade journals that we know of, treating on the subjects you mention, are "Brick and Clay Record," published by ourselves, and the "Clayworker," published at Indianapolis. There are two or three journals that pay more or less attention to pottery, but do not take up the other branches of the industry.

Want Addresses.

292.—Please give me the address of the Michigan clay worker who wanted the name of a promoter. The query appeared in the Feb. 17 issue.—J. J. Middlesworth, Duffield, Mich.

292.—Can you put me in touch with, or give me the name and address of the party who wrote under File No. 292, Feb. 17? O. A. Miltz, 348 Leland Ave., Toledo.

292.—Would like to have address of No. 292 Michigan, page 485, Feb. 17 issue.—P. W. Hearn, Secy. National Sewer Pipe Co., Webster City, Ia.

We have complied with the request in each of these cases.

324.—Please forward the enclosed letter to party inquiring about books on enameling in the Feb. 17 number.—James Witty, 1202 Third St., Beaver, Pa.

The letter has been forwarded as per request.

Book on Pottery Chemistry.

436.—Is there such a book as "Lagenbeck's Pottery Chemistry"?

We have none such listed and have written to several publishers of technical books in an effort to locate it. Can any of our readers assist us?

Wants Face Brick in Montreal.

379.—I visited several brick plants in Ohio and Pennsylvania, looking for agencies for gray, buff, iron-spot and red-range rough-face face brick, but found it difficult, as a good many are represented in Montreal and some have heavy freight rates

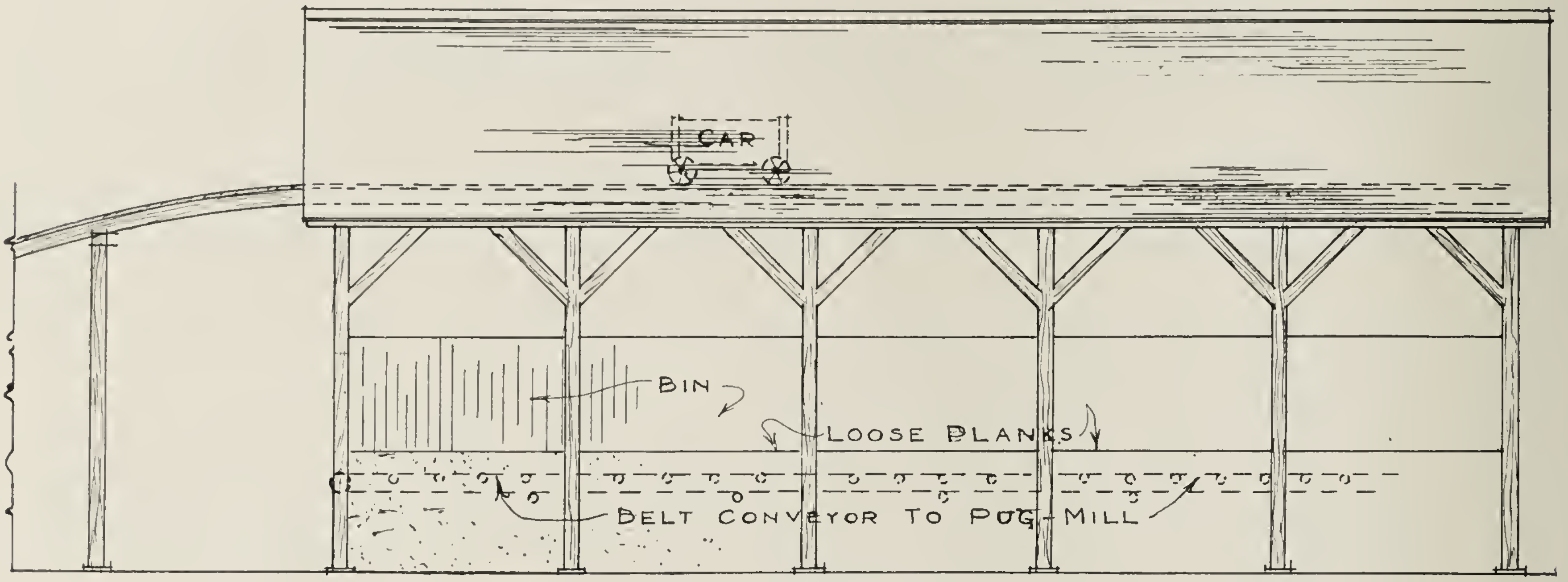
(*Continued on page* 825)

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

Contributions from our readers are solicited for this department on any subject pertaining to the manufacturing end of the industry. Short cuts and labor-saving suggestions are particularly sought. Address all communications to the Editor of the Superintendent Department. Brick and Clay Record, Chicago.

This Idea Wins the First Prize in Superintendents' Contest

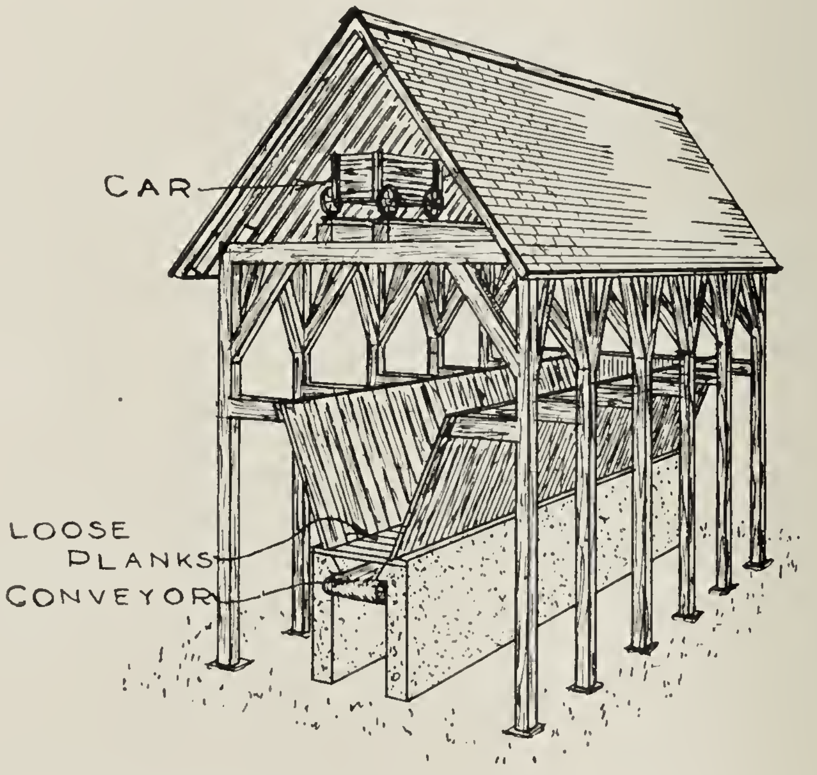


ELEVATION

The best idea submitted to this department for this issue is believed by the contest editor to be that of R. C. Gangewen. It follows:

> *I submit a plan to handle clay. The clay is brought from the pit by cable and cars on an incline and a trestled or raised track, running lengthwise through the clay shed. The track should not be less than 15 feet in height, and 20 feet would be better. By examining the smaller drawing or perspective view, you will note the details of the construction. Concrete (or brick) walls are used to protect the conveyor. On the top of these walls, loose boards are placed so that the clay, when dumped into hopper, only falls on conveyor as is desired, these boards being moved or withdrawn as clay is required at machine. The shed is open on all sides and the bin proper is so constructed that air circulates freely in and over the clay. By this plan enough clay may be stored for a week's work or even more, besides insuring thorough mixing. Being exposed to the free action of the air the clay also is given a chance to disintegrate. One man can operate the planks or boards for a capacity up to 100,000 daily. The drop of 15 feet from the car to the bottom of the bin gives the clay ample opportunity to be mixed. A further mixture is obtained when the boards are removed and the clay seeks an exit by the natural law of gravity, the center traveling faster than the sides.—R. C. Gangewen, 116 McCollie Ave., Chattanooga, Tenn.*

A special prize of $5 is offered each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?



Get Acquainted with Your Brick.

It has been said that it is impossible to match the product of one face-brick plant with that of another. The saying is sufficiently true to warrant the statement that there are certain peculiarities in shade and texture which your brick has, and which are possessed by no other brick that comes into the markets to which you ship. Study these peculiarities and learn what color mortar joint, what width and texture, brings out the shading and texture of your brick to the best advantage. Do not depend upon some dealer or agent—learn for yourself. Any mortar color manufacturer will send you enough of his various colors to experiment with and you can learn enough about bricklaying to lay four or five bricks together with fairly workmanlike exactness. Keep track of the amount of color you use, whose color it is, and the other points that will enable you to show others just how you produced certain results. When buyers visit your yard, you will be able to show them—you may be able to teach a dealer something that will help him sell your brick hundreds of miles from the point where you make them.—D. W. F.

This System Eliminates Takeoffs.

A conveying and drying system which eliminates all takeoffs is a labor and time saver. In a system suggested the brick are conveyed to the kiln on practically the takeoff belt and taken off and set at the same time. The kiln floor is covered to a height of six or eight courses, then hot air is forced through the brick to dry them. When dry a second series of six or eight courses is placed on the first and dried as before. When the kiln is full and dry the burning is done as usual. This eliminates the takeoffs and tosses as the setters take-off and set the brick and as the setting is never more than eight courses, no tossers are required. The clay must be stiff enough to stand up six or eight courses when green and be susceptible of quick drying. The system is more applicable to the stiff mud common brick process.

Valuable Information for Clayworkers.

Designing and operating engineers, clay workers in general, and the fuel departments of industrial concerns, interested in the distribution and character of the different coals in the United States, will find valuable information in a report just issued by the United States Bureau of Mines as Bulletin 22, entitled "Analyses of Coals in the United States, with Descriptions of Mine and Field Samples collected between July 1, 1904, and June 30, 1910." This report contains the analyses of 5,000 samples of coal taken from 1,500 coal mines and prospects situated in the various coal fields of the United States. Not only all of the important fields are represented, but practically all of the more important mining districts. The purpose of the bureau in compiling and publishing this information is to present reliable information regarding the chemical composition and heating value of the coals. The samples of coals were collected by experienced men according to a definite and uniform system, and were analyzed under carefully controlled conditions, so that there might be no question as to the relative merits of the different coals so far as this can be determined by chemical analyses and determination of heating values.

A Steam Boiler Fallacy.

Many firemen believe it is easier on the boiler and engine if they keep the steam pressure below the blow-off pressure, and we quite frequently find a boiler working at 40 lbs., pressure when the safety valves are set at 80 lbs. This involves loss in more than one way. For instance, the necessary volume of steam at the low pressure is considerably more than at the high pressure. The loss in transmission through the pipes, therefore it higher. Again, the pressure at the distant end of the pipes also is very low, which means the engine will not be running economically, but in many cases the speed will be so low the machine efficiency in the plant will be materially affected. Then, too, if the boiler occasionally has to be pressed for steam there is not nearly so large a heat reserve at the low as at the higher pressure.

Ashes Corrode Metal.

It is a common practice to throw ashes and cinders between the ties of a track to form a more secure bedding. Ashes, under certain weather conditions, will corrode the steel rails. Keep them away from not only your steel rails but iron piping and other metals.—J. G. W.

Boiler Pointers.

A good fireman is a fuel saver.

Oily water is injurious to the boiler. Condensed steam contains oil.

Badly scaled or sooty boilers waste more fuel than it would cost to keep the boilers clean.

Feed a boiler with water continuously and not large quantities at long intervals.

Warm water is better and cheaper than cold water in a boiler.

Prize Problem Contest

In each issue of "Brick and Clay Record" a problem will be propounded to the readers—usually an actual experience of some clay worker, who, confronted with certain conditions, sought a solution and succeeded, or, having failed, still waits a Moses to lead him out of the wilderness. A special prize of a paid-in-advance subscription to "Brick and Clay Record" for three years will be given for the best answer.

The time in which answers to problem No. 7 may be sent in has been extended to April 15. The problem is as follows:

PROBLEM NO. 7:

What would you do if you had a competitor in your district whose labor, power, fuel and shipping conditions were better than yours, and who, despite his opportunities to obtain a greater profit by maintaining fair prices, insisted on placing his prices below what you yourself could sell for at a profit?

Send in your answer to Problem No. 7, so it will reach us before April 15. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 8:

What would you do if you operated a brick plant in a small town whose homebuilders insisted on using lumber and concrete construction?

Send in your answer to Problem No. 8 so it will reach us before April 25. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

Answers to Problem No. 6.

V. H. Cartright, A. B., Graduate Ceramic Engineer, Peoria, Ill., is awarded the first prize to Prize Problem No. 6. The question submitted was as follows:

What would you do if you were going to install electric motors in your plant—use belt drive or connect them direct to the machines? His answer is:

For an electric motor to give its greatest efficiency, the bearings must be absolutely true and the wiring perfect. No motor with a worn bearing will run long before an insulation is injured by rubbing and the wiring burned out.

There are two general methods of drive: one by direct gear connection, the other by pulleys and a belt. Let's look at the conditions of each.

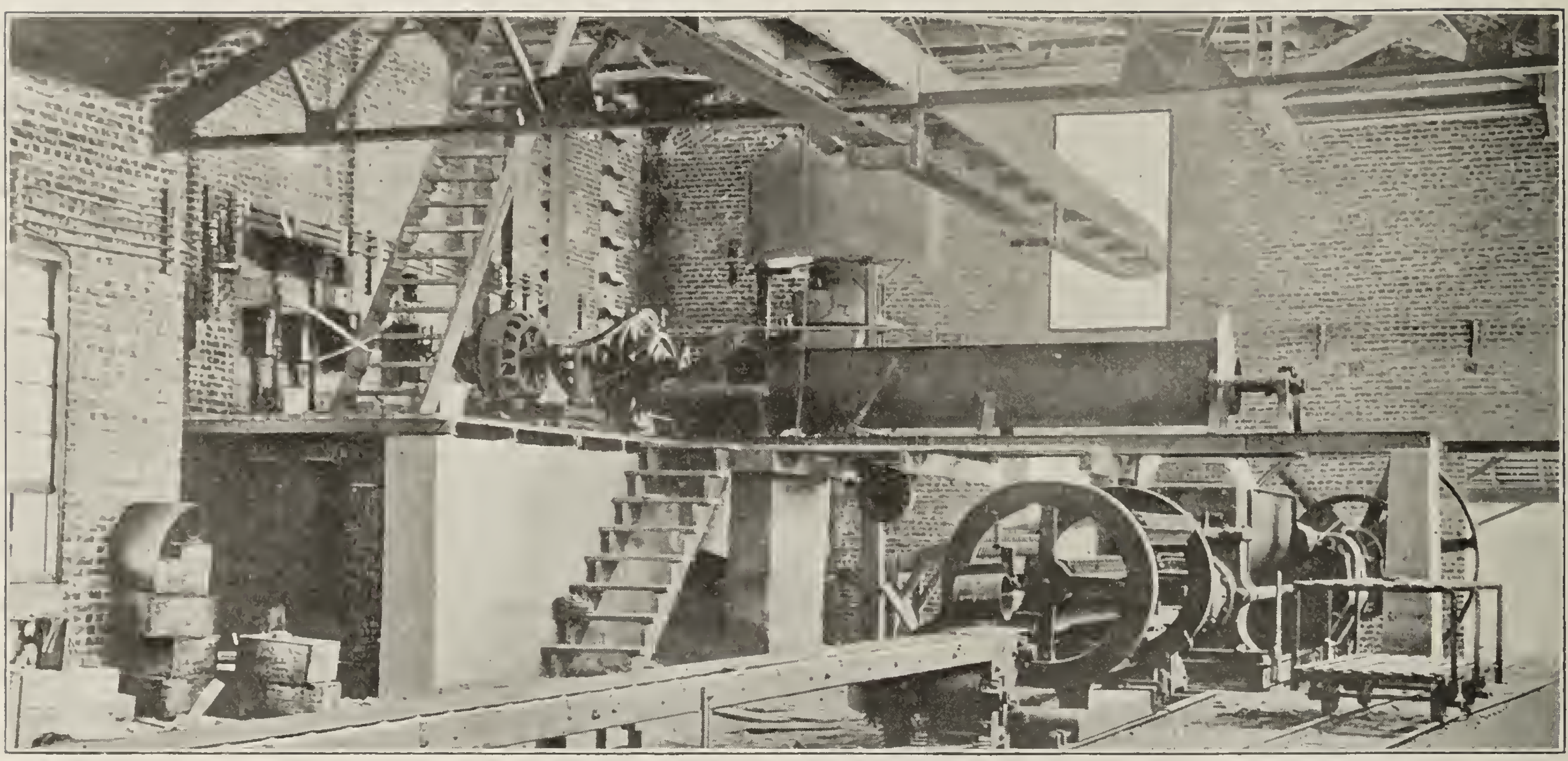
In the first place, motor shafts revolve rapidly—too fast for gears to work well. The gears are constantly undergoing shocks and strains caused by the severe impact of the teeth against each other. The shaft of the motor, being supported on only one side, is not able to withstand this enormous strain without harm either to the bearing or to the shaft itself. In two cases I have known the shaft to become sprung from no other cause than the shocks of the meshing gears.

Again, gears require constant care to prevent them from cutting and getting out of line. Placed as the pinion is on the motor shaft, it is almost impossible to keep the gears in perfect

(*Continued on page* 846.)

With the Clay Plants

A Department Wherein is Set Forth Factories Erected or Planned, Extensions and Alterations, Recent Incorporations and News Items That Will Interest the Craft.



MANY of the delegates to the New Orleans convention stopped off at Birmingham, Ala., on their return trip and visited the brick plant of L. L. Stevenson. It has been quite often referred to as "An Up-to-date Southern Brick Plant," and the northern clayworkers were anxious to see what was considered a modernly equipped plant in the south. None who made the inspection trip were disappointed as the Stevenson plant is everything claimed for it and Mr. Stevenson can give his progressive northern brothers several pointers.

The plant is located about 12 miles from Birmingham, on the Central of Georgia and the Southern Railroads, and represents everything modern and efficient in equipment and layout. All the machinery is motor driven, the power is purchased from the Alabama Power Co., and the kilns are operated on the waste heat system.

This plant has a capacity of 10,000 brick per hour, the product being red shale common and "Oriental" brick, the latter resembling a "Tapestry" brick with a rough wire-cut surface. The brick may be burned any shade from light red to almost black.

Shale is mined at a point several hundred feet from the plant and hauled by cars which are pulled up the slope by a 50 h. p. motor. The shale is first sent to a crusher, driven by a 30 h. p. motor and is then passed through either pulverizers or dry pans, depending on its condition. A tripper conveyor then distributes the material over a 100 ft. storage space.

The pug mill is driven by a 50 h. p. motor and the combination brick machine by a 125 h. p. motor. The photograph used in illustrating this article shows these two machines and illustrates the simplicity of motor driven machinery and the flexibility with which it can be located to suit the sequence of operations.

An electrically-driven transfer car conveys the brick from the dryer to the kilns, of which there are 16, each of 70,000 brick capacity. Three motor-driven fans are used to provide draught, circulation, and exhaust for the kilns. Power is received at 22,000 volts and is stepped down to 550 volts for the use of the motors, and to 110 volts for the incandescent and arc lamps. A two-panel switchboard equipped with oil circuit-breakers protects and controls the various circuits. The electrical equipment, except the hoist motor and transfer car, was supplied by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

NEWS IN BRIEF.

B. N. Jessen has taken over the brick and tile factory located in Wellman, Iowa, and will start operations as soon as the weather permits.

There's room for reservoir vases for cemetery, park and lawn uses made from clay instead out of cast iron. The field for original designs is prolific where ancient models aren't worth patterning after.

Oscar W. Simmons, an Atchison (Kas.) banker, has purchased the majority stock of the Leavenworth (Kas.) Vitrified Brick Company and it is said will start the plant the latter part of this month.

The Keating Brick Works of Muscatine, Iowa, has installed a new brick press. Considerable difficulty was experienced when the press arrived, as the unloading facilities at the Muscatine station had never been so severely taxed as they were by the giant brick press that came to the Keating company.

Plans have been filed for what is said to be the tallest building in the world. It will be located in New York City, on the block bounded by 57th and 58th Streets, Eighth Avenue and Broadway. The structure, according to the plans, will be 894 feet high and will cost nearly $13,000,000. The plans indicate that the building will be fifty-one stories high, with a basement and sub-basement. The facade will be of brick.

Governor H. D. Hatfield, of West Virginia, has under consideration a project for the employment of convicts from the state prison at Moundsville. It contemplates the erection of a brick-making plant, to supply paving brick for state highway im-

(*Continued on page 827.*)

INFORMATION WANTED

(Continued from page 821.)

from southern Ohio.—T. A. Morrison, 204 St. James St., Montreal, Que.

The difficulty lies, in all probability, in the fact that Montreal has been a good market for Ohio-made face-brick for many years, and all plants that have been established for any length of time have connections in that part of Canada which are doubtless satisfactory. We publish the inquiry however, with the idea that some of the newer plants may wish to make a Canadian connection, and that they will write our correspondent.

Has China Clay in South.

443.—I control a china clay deposit in Alabama. Do you know of anyone that would be interested in the same?

We refer this to our readers.

Wants Mr. Butler's Address.

434.—William A. Butler's article, "The Passing of the Tall Chimney," in the Jan. 20 number, interests me very much. I am desirous of learning more on this subject and would like to have his address so I can write him.—George Tafel, 2091 Amsterdam Ave., New York City.

A letter addressed to 1450 Hayes St., San Francisco, Calif., will reach Mr. Butler.

Plant Location.

235.—The following inquire for the address of parties asking about 235 in the Feb. 17 number, page 486: J. P. Anspach & Son, Edgerton, Ind.; B. H. Langerak, Western Clay & Gypsum Products Co., Ancho, New Mexico; Jackson & Church Co., Saginaw, Mich.; A. G. Kahn Brick Co., Selma, Ala.; John Hopwood, Menominee, Wis.; Arch E. Ray, Madison, Wis.; H. A. Cameron, Commissioner Board of Trade, Estevan, Saskatchewan, Canada; Frank Halbeisen, Fremont, Ohio.

We have complied with these several requests and forwarded the letters enclosed to the proper parties.

Promoting Drain Tile.

292.—I am not a promoter but I might be interested or able to get someone interested in 292 Michigan's proposition, provided I knew more about the location of this tile plant and other general information.—John H. Schott, 1702 Cooper St., Jackson, Mich.

292.—Please send the enclosed letter to 292 Michigan, Feb. 17 issue.—Charles R. Fife Co., 624 Central Bank Bldg., St. Louis, Mo.

292.—Please refer the enclosed letter to 292 Michigan and oblige.—C. R. Dickinson, Waverly, Mo.

We have done as requested in the last two cases and call the attention of 292 to Mr. Schott's inquiry above.

Machinery for Drain Tile.

417.—I am interested in procuring machinery for the manufacture of drain tile and would be pleased to be placed in touch with any manufacturers of such machinery you have on your list. I am interested in making only one size—5x12.—George F. Shurtleff, 299 Madison avenue, New York.

We have listed the above information in our Service Bulletin, which goes to all our advertisers.

List of Fire Brick Makers.

388.—Does a list of the various brands of fire bricks exist, such as is manufactured in Ohio and Pennsylvania? Who makes the Standard brand?—Oscar Maicas, 1127 Washington street, Hoboken, N. J.

No such list exists. This magazine is seeking to have all trade marks used in brick manufacture listed in a classified directory which is published in each number. This list, so far, is incomplete. The Stowe-Fuller Co., Rockefeller Building, Cleveland, Ohio, make the "Standard."

Detroit Face Brick Dealer.

303.—Give us name and address of party who wants line of face brick in Detroit. We saw this item on page 360, February 3 number, under File No. 303.—Illinois Supply & Construction Co., by W. P. Grath, 721 Century Bldg., St. Louis, Mo.

We have sent in the desired information.

Electric Drives.

415.—We would like to know the name of the person that wrote you about electric drives in Problem No. 6, Prize Contest. We are throwing out our electric drives and would like to sell them the motors and tell them all about it. It is the most ex-

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Brick and Clay Record,
Chicago, Ill.

Gentlemen:—We are interested in the possible use of advertising space in your Reciprocal Clay Products Advertising Section appearing on pages 855-862 of this issue of "Brick and Clay Record" and would like to have you tell us, without obligation on our part, the cost of an ⅛ page card therein.

Yours very truly,

.... Name

.... City

.... State

The man who makes his living in clay and who builds in frame is a joke—on himself.

"They Never Fade"

Colors

Red, Brown, Buff, Purple, Black for
Cement, Mortar, Brick, Stone, Concrete, etc.
25 Years Exposure Proves Their Permanence

Ricketson Mineral Paint Works, Milwaukee, Wis.

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Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff Strongest and most durable
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U.S.A.
Correspondence solicited

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KILN EXPERT

Simplified Continuous Kilns. Oblong — Compact — Dug Out. Recuperative Round Down Draft Kiln for **Gas Firing with Pre-Heated Air.** Fan Draft Used

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with Frink Pyrometers starts within one week of the receipt of your order. No interruption to the progress of your work. Ask us HOW.

The Frink Pyrometer Co. Lancaster, Ohio

We Can Save You Money
On clay working machinery. Repair parts for "McKenzie" brick and tile machinery. Hollow block, Fireproofing and special dies. Write for catalogue.
Brazil Machine & Foundry Co., Brazil, Ind.
Successors to Adrian Brick & Tile Co., Adrian, Mich.

PULSOMETERS
Cost less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication.
Write today for our "Pulsometer Handbook." It shows many novel installations and contains valuable data on pumping problems.
PULSOMETER STEAM PUMP CO.. 13 Battery Place, New York, N. Y.
Chicago Office: 223-231 North Jefferson Street

"STAG" BRAND
Manganese Steel Castings
EDGAR ALLEN AMERICAN MANGANESE STEEL CO.
Chicago, Ill., New Castle, Del.

pensive luxury that ever was invented and we are only paying 2 cents per K. W.—The Independence Brick Co., Independence, Kans.

The problem referred to was not submitted by anyone, but was proposed by the editor of the Prize Contest Department. We would like to have your experience with the direct-driven motors. Why was it a "most expensive luxury?" Many brickyards have installed electric power profitably.

Address of A. C. S.

394.—What is the permanent address of the American Ceramic Society?—London Pressed Brick & Tile Co., Ltd., London, Canada.

Prof. Edward Orton, Jr., Dean Ceramic Department, University of Ohio, Columbus, Ohio, is the secretary of this society.

Brick Mantels.

410.—Please send me the address of a firm making a specialty of building brick mantels.—W. Maurer, architect, 2426 Augusta St., Chicago. Telephone Humboldt 4356.

We have sent Mr. Maurer all we had listed in Chicago.

Wants Kieselguhr Near New York.

429.—Where can I obtain a small quantity of Kieselguhr in or near New York?

Can any of our readers help this party? We will be glad to forward the information to him.

Dredging Machines.

361.—Will you give us the address of this inquirer in Feb. 17 number—Jackson & Church Co., Saginaw, Mich.

We have complied with this request.

Carborundum Paint.

319.—Who is the person that inquires about carborundum paint in March 7 number under File 319?—National Sales Co., Cincinnati, Ohio.

We have sent the name and address to you as requested.

Infusorial Earth.

433.—Who is inquiring about infusorial earth in March 7 number under File 433?—National Sales Co., Cincinnati, Ohio.

The address of 433 has been sent you as per your request.

Paving Brick Plant Location.

236.—Several inquiries have come in for the name and address of 236 who, in the Jan. 6 number, asked for the name of someone who had a suitable location for a paving brick plant, and this despite the fact that 236 has announced that out of the deluge of letters she has made her choice. The following inquiries have reached us lately: Peter Zechini, Newcomb, Tenn.; W. B. LaPorte, Independence, Ohio; J. M. Mallory, Savannah, Ga.; Otis L. Jones, Oglesby, Ill.

Miss Rose Bohler, care Western Lime Co., Marion, Ohio, is the person referred to. We have sent the several letters to her despite the statement she has already chosen a location.

Has Kaolin Mine.

435.—I am the owner of a kaolin mine and would like to get in touch with someone who would buy the clay or would manufacture it here.

We refer this to our numerous readers, among whom we feel there will be at least one or two interested.

A Face Brick Proposition.

437.—We would like to get into communication with persons who are interested in the face brick business, and who might be induced, on proper showing, to become interested in a good face brick proposition in Kansas.

We know of this plant and suggest that it offers unusual opportunities to anyone seeking an investment.

Wants China Clay.

432.—We would like very much to obtain a list of the companies in the United States who have beds from which they furnish china clay for paper-making or other purposes.

We have no such list. Will those interested write us? This is one of the largest clayworking plants in the Central West making this inquiry.

Puffing or Swelling of Tile.

314.—Place me in touch with 314 Indiana in Q. & A. Dept., Feb. 17 number. I have had the same experience (puffing of drain tile in burning) and overcame the same.—D. S. Payne, Blairstown, Ia.

We have sent the required information by mail.

NEWS IN BRIEF.

(*Continued from page 824.*)

provement, which was authorized by the last West Virginia legislature. The suggestion has been made by D. I. Smith, president of the Cabell county court, who asks that the plant be located at Huntington, this site being urged on account of suitable clay nearby and low cost natural gas available.

A syndicate headed by C. B. Lawton, of Pittsburgh, Pa., is negotiating for the purchase of the plant of the Independent Steel Company, at Huntington, W. Va., with the intention of converting it into a factory for turning out glass brick.

The Alfred Tomkins Contracting Company of 432 Bailey avenue, Pittsburgh, Pa., has received the contract for rebuilding a brick and steel brick plant for the Thornton Fire Brick Company, at Grafton, W. Va., the cost of which is estimated at $30,000.

Geo. E. Feustel, the Fairport (Ia.) potter, says his red pots are the best and, that's 'nuff sed. There's scarcely a maker of red pots in all the land that doesn't claim the same superlative. True, there's nothing better than the best, and all's well when the best are really good.

Announcement has just been made that the Great Western Pottery Company, of Kokomo, Ind., that $12,000 of the preferred stock of that company has been redeemed, and the same amount has been issued as common stock. The company is one of the largest manufacturers of sanitary ware in the West.

The Ideal Brick & Tile Company's plant at Brantford, Ont. is equipped with soft-mud brick and tile machinery, and, the plant being located on a bed of red clay of good quality, the expense of hauling is reduced to a minimum. Exhaust steam is used for drying purposes. Four down draft kilns will be added to the present equipment in the near future.

The Fleming-Houck Company, of Bristol, Tenn., recently organized, is planning to install a plant with a daily capacity of 50,000. J. H. Houck, formerly of Springfield, Ohio, a brickmaker of more than thirty years' experience, and J. H. Fleming, formerly of Atlanta, Ga., are those principally interested. The machinery for the plant is being purchased and operations will be begun as soon as possible.

The plant generally referred to as the Castanca Brick Works at Lock Haven, Pa., which has been idle for some time, has resumed operations. A new corporation known as the Lock Haven Brick & Tile Company, now owns the works and will operate the plant, increasing its present capacity in the near future. C. H. Long of Mill Hall is president; F. C. Lucas, of Pittsburgh, is secretary and treasurer of the company.

The engineers employed in the potteries in the vicinity of East Liverpool and Wellsville, Ohio, and Chester and Newell, W. Va., which "union" sought an increase in wages last Fall while the manufacturers and the joint conference committee were in session in New York, have "come back" and presented a set of demands to the manufacturers in that district. A meeting of manufacturers and a committee of the engineers was held at East Liverpool when the "propositions" were gone over, and then the engineers decided it would "be wise" to wait until July next before the matter should be re-opened. It is a safe bet there will be no eruption between the employer and employe in this instance when July comes.

The Bohemian Art Pottery Co., of Falls Creek, Pa., which has but one kiln, and which was recently placed under the management of J. L. Lytle, of Pittsburgh, Pa., will enter the cooking-ware pottery game. The goods will be made from "pure" top soil, and the plant is the only one in the world to use such clay for the purpose. The ware when fired has a red body, but will have a white glaze inside the pieces and a red glaze on the outside—like all cooking wire. Some Bohemians first started this plant, manufacturing garden pottery, but did not make a success of the venture. Several well known ceramists are connected with the manufacturing end, which adds weight to the probable success of the venture.

The fact that Charles L. Casey, head of the Guernsey Earthenware Co., of Cambridge, Ohio, contemplated erecting a six kiln pottery as an addition to his present property, is not generally known. Plans are now being completed with this end in view. Effective March 1, George Heisley, of East Liverpool, Ohio, will become associated in the active management of this business with Mr. Casey. Heisler reecived his first training in the decorating shops at East Liverpool, Ohio, under the management of Will S. George, now the owner of two potteries in East Palestine, Ohio, and Cannonsburg, Pa. He later was manager of the decorating shops of the Warwick China Company, of Wheeling, W. Va., when Thomas Carr was at the head of that plant. He more recently has been western manager for the Drakenfeld Color Company, and is well known to all Western and Eastern pottery and glass manufacturers and decorating shop managers.

Judging from the volume of business the American pottery manufacturers now have on their books, the domestic plants will be kept in continuous operation throughout the year. The labor skies are clear, with one possible exception, and no "harm" is expected to come of this incident. The manufacturers declare that not in years has early season business been so extensive as is the case this season. Jobbers are ordering most liberally of domestic pottery, and it is not denied that a lot of imported dinner ware patterns have been thrown out, and domestic goods substituted. The reason for this is found in the fact that the jobbers do not have to wait six months for their goods; do not have to order in such large quantities, but can order as much as they please and

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The unequalled serviceability of the CALDWELL CYPRESS TANK is because of its unequalled quality of materials and construction. We use only the "everlasting" cypress from the Louisiana swamps, that outwears and outlasts every other kind of tank wood, being practically as durable as steel. These tanks are hooped with such care and precision as to be absolutely tight, not for a season but for an indefinite number of years. Caldwell construction makes leaking impossible, and repairs unnecessary. Investigate the Caldwell tank and you will take no other. Ask for illustrated catalogue.
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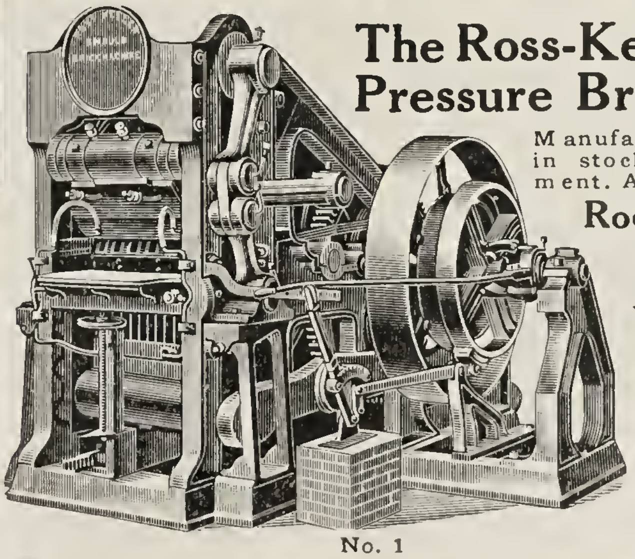

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The Ross-Keller Triple Pressure Brick Press
Manufactured and carried in stock for prompt shipment. Also
Rock and Shale Pulverizers
Write for catalogue and prices.
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Absolute Control of Temperatures in all Kinds of Kilns and Furnaces
Heraeus Le Chatelier
PYROMETER
Recommended by the highest authorities
For measuring temperature between 0 and 1600 deg. Celsius, equal to 2920 deg. Fahrenheit. Successfully used in establishments for the manufacture of Brick, Pressed Brick, Terra Cotta, Pottery, Porcelain, Stoneware, Chamotte, Cement, Glass, Iron and Steel and other metals, particularly for Hardening and Annealing, also for Molten Metals, Cartridges and Ammunition, Chemicals, Gas Accumulators, and by Boiler Inspectors, Schools and Colleges.
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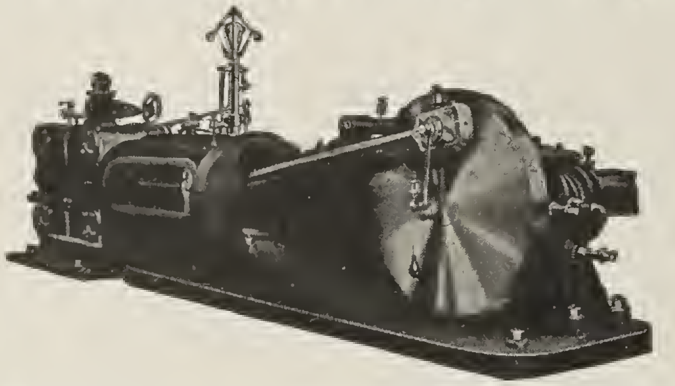

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Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

We Reline Press Boxes

We reline any make and for any shape brick. No job is too exacting for us — none too small or too large

We make Kiln Bands, Kiln Band Lugs, and Grey Iron Castings for Grinding Pans. Special Foundry Orders are a Specialty. Submit sketch or specifications.

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Bolivar Foundry and Machine Company
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as often and obtain quicker deliveries from the American manufacturers. At the same time the character of the American ware is being steadily improved. This has helped trade to a considerable extent.

The brick plant and gravel pits owned by the Marysville (Cal.) Sand, Cement, Block and Brick Company, located on the Yuba river, have been sold to the Pratt Building Material Company, of San Francisco.

The Neuse Realty and Brick Company, of New Berne, N. C., has been incorporated, with a capital stock of $50,000. The incorporators are D. E. Henderson, W. J. Blalock and L. G. Tolson, all of New Berne.

The Royal plant of W. J. Rainey & Co., at Connellsville, Pa., which has been inactive for several months, has resumed operations, and will make high grade fire-brick. The company is reported to have recently booked a good volume of business that will insure activity for some time to come.

A bill has been introduced in the New York state legislature, which provides for the establishment of one or more brick-making plants within the state, to be under the supervision of the superintendent of prisons, and to be operated by convicts. The output will be used on state roads exclusively.

A special meeting of the stockholders of the Clearfield Brick Manufacturing Company will be held at the general office of the company in the Trust Company Building, at Clearfield, Pa., April 24, for the purpose of holding an election and voting for or against a reduction of the capital stock of the company from $450,000 to $300,000, under the provisions of an Act of Assembly.

The Etruria Pottery, of Trenton, N. J., which has been in operation sixty years, and employs 300 hands, will close the early part of March, if the statement made by Charles H. Cook, of the Cook Pottery Company, be true. He states that trade conditions are such that the company is forced to abandon the manufacture of general ware, the demand for which has been very slack since the first of the year.

The report of P. S. Phillips, as receiver for the Hanover Pressed Brick Company, which concerned the inventory, has been filed in the courts at Newark, Ohio. The report shows the plants to be in excellent physical condition. The inventory was made by E. T. Johnson, M. J. Reese and George D. Orr. The assets are placed at $26,912.19 and the accounts in the possession of the central office are placed at $29,315.90.

Cleveland capitalists have completed a deal whereby the Corning brick plant at Glouster, Ohio, will be put into operation in the near future. The property has been taken over and with it a 120-acre farm of the late Nelson Rodgers, which will give an abundance of material. A stock company was organized to start the plant several years ago, but after the machinery had been ordered and everything was in readiness for operation, lack of finances and some company troubles put a damper on the project and the plant was never started.

The increasing cost of clay is one of the things the American potters quote when discussing the cost of manufacture. The recent suspension in the Devonshire clay mines in England has made a serious curtailment in the available supply of china clay in this country, and it is now being sold at a premium. American manufacturers do not anticipate an early reduction in the price of this clay, for they, like all others, know that when once a price has been boosted, it is very difficult to bring it down.

The capital stock of the General Porcelain Co. which will concentrate all of its western plants in Parkersburg, W. Va., has filed its non-resident charter with county officials at Parkersburg, which shows its capital stock to be $750,000. This company has been erecting a large plant at Parkersburg to take care of the business done in several smaller plants in East Liverpool, O., district. Many workers will remove to Parkersburg from East Liverpool, and New Cumberland, W. Va., to take positions in the new plant. In accordance with the amended constitution, the second primary election of candidates for membership on the executive board and in other official capacities of the National Brotherhood of Operative Potters, will be held by the various unions affiliated with the organization at the first meeting in March. Members in good standing are being placed in nomination for the primary race, and they must accept or decline within ten days. Notification must be forwarded to Secretary John T. Wood, at East Liverpool, Ohio. The two candidates receiving the highest number of votes for each office will make the race at the regular election, to be held the first meeting in May. Officers elected will be confirmed by the annual convention which will open in Atlantic City, N. J., early in July.

Although American potters had supposed that they were done with the investigation of the Department of Commerce, William Maeder was sent from Washington to Sebring, Ohio one day last month to gather up the loose ends of the investigation. The party which is in Europe for the investigation of methods there is not expected to return until Spring. After it returns the prices charged by the American and European manufacturers are to be collected and tabulated and an attempt made to work out some method that will enable domestic potters to produce their wares on a basis of competition with European potters. No report is expected from the investigators until Fall. Conditions are so good now that American potters are afraid they won't last and this is the only thing that pottery manufacturers have to worry about at present. With every other business passing through the slackest season that has been experienced for some time the pottery manufacturers have practically all the business they can take care of and are not being forced to cut prices to get business. Prices, indeed, have been slightly built up during the past few months. Settlement of the wage scale through the Astor House agreement (as it is called) is believed by the manufacturers to be final. This means that no higher wages will have to be paid to the workers. The only spot on the horizon of the pottery men is the slowness of collections. This, it is claimed, is due to the tendency to

There is "masonry" in burned clay aside from that which has to do with lime and sand.

hold on to actual cash by the money kings until they see how the regional bank plan is to work out.

Two new kilns are being erected at the Old Bridge (N. J.) enamel brick and tile plant.

The incorporation of the Nicholson Clay Products Company, of Cambridge, Ohio, is announced. Andrew W. Nicholson is the principal stockholder and the capitalization is $100,000.

The National Brick Company of Montreal, P. Q., resumed operations on the 20th ult., starting with a daily output of 300,000 brick. The plant has been shut down since Dec. 1.

The Nova Scotia Clay Works, at Halifax, N. S., has three plants, manufacturing common and pressed brick, drain-tile and porous terra-cotta fire proofing.

A new Y. M. C. A. building, costing $140,000, has recently been completed at Brantford, Ont. The pressed brick was supplied by the Milton Pressed Brick Company.

The first decorated ware kiln has been fired at the new 15-kiln Laughlin pottery, at Newell, W. Va. All of the kiln was dinner ware. Raymond Thompson is in charge of the crew.

The dissolution of the Sioux Paving Brick Company, of Sioux City, Iowa, is announced, the company having been absorbed by the Clay Products Company, which, in turn, was taken over by the Sioux City Brick & Tile Company.

The Canadian Pacific Railway is erecting a 16-sty. brick and terra-cotta hotel in Vancouver, B. C., that will cost $2,500,000. It is said that more than 400 mechanics are at work on it and that everything possible is being done to rush it to completion.

The South Bend (Ind.) Brick Company was bought in at a receiver's sale, for $200. The purchaser was Daniel G. Rose, who represented various creditors of the defunct company. The property carries a mortgage of $25,000, held by Byron Kanaley, of Chicago.

The Riddell Valley Brick & Tile Co., of Gilchrist, Mich., has been incorporated. The capitalization is $5,000 and the company will manufacture and deal in tile, sewer-pipe, property and clay products. Paul Wagner, George C. Penderson and William Ley are the incorporators.

The Comanche (Tex.) Brick Company has completed the laying of the spur from the railroad main line to its factory site, and the unloading of the machinery, which is on nine freight cars, will proceed. The new company will manufacture sand-lime brick of a very superior quality.

The British Columbia Pottery Company, of Victoria, B. C. has an up-to-date plant for the manufacture of sewer-pipe. The old plant, which was destroyed by fire last year, has been replaced with one that is said to be a model, all modern appliances being incorporated in its machinery.

The Suburban Brick Company of Moundsville, W. Va., is making a number of improvements to its plant, among which are two down-draft kilns, which will be added to the six already built. One of the old, square kilns has been torn down. Waste heat from the cooling kilns will be used for drying.

The Clay Products Company, of Spokane, Wash., is said to be the largest producer of flower pots in the Far West, but the J. A. Bauer Pottery Company of Los Angeles, Cal., is disputing this prestige, together with the Standard Pottery Company, of Los Angeles. At any rate, it is stated that these three concerns do nearly all of the flower pot business west of the Rockies.

Milton B. Bates, executor of Peter Bates, has entered suit against the Fallston Fire Clay Company in the Beaver (Pa.) courts, to recover damages for fire clay mined on the Bates farm in Brighton township. Triple damages of 10,800 are asked, under the act of assembly, for 18,000 tons of fire clay mined. It is also claimed that five acres of land were rendered valueless, for which $7,500 additional damages are asked.

The Taylor, Smith and Taylor Pottery, of Chester, W. Va., has discontinued operations at its old plant in East Liverpool, Ohio, and the entire stock has been removed to the new addition to that company's plant in Chester. The Taylor-Smith & Taylor firm took over the old Brunt pottery, in East Liverpool, over a year ago and since that time has been operating it steadily. Upon the completion of the new addition in Chester, all moulds, board, tools and etc., were moved across the river to the Chester plant.

About 150 employes of the clay shop at the new Edwin M. Knowles pottery, at Newell, W. Va., held a business meeting and organized a sick benefit association. Proctor Ankrim was elected president; William Maley, vice-president; Frank McCullough, Secretary; and Joseph Chadwick, treasurer. Secretary McCullough started a canvass of the clay department to ascertain every person who wishes to enroll in the new organization. The men will hold another business meeting in the Brotherhood hall in East Liverpool, when a constitution and by-laws will be considered.

When country roads are properly drained, the annual cost of repairs is materially less than when they are simply crowned and left to be beaten down in mud-holes. And, it is said, no form of drain does the work quite so well as round tile of the Jackson-Albany pattern, for instance. This tile has been chiefly used for drainage purposes on cultivated or swampy land, and it is a familiar shape to farmers. Since the purpose of this tile is to carry off surplus water and to admit air to the soil, it suggests itself as a means of draining dirt roads, as well as those of more permanent surfacing.

Gamble & Bryan, at East Liverpool, O., a brick contracting firm, have landed the contract for the brick work, on the new pottery of the Consolidated Manufacturing Company at Grafton, W. Va., in which a number of Chester people are interested. The foundation for the building including the kilns is rapidly nearing completion, although the work has been held up considerably recently on account of the bad weather. The plans and specifications for the carpenter work of the new pottery have been placed into the hands of contractors and

"Clinton" Brick and Mortar Colors

Unusually strong in pigment. Positively warranted not to wash out, "streak," or fade. Recognized everywhere as the standard of Brick and Mortar Colors.

Full particulars and prices gladly furnished.

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Insist on the genuine "Clinton" colors made only by

Clinton Metallic Paint Co., Clinton, N. Y.
P. O. BOX 38

The Last Word

in instrument manufacture. An inferior may result in great losses. Read about it in "Pyrometer Facts".

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THE BUCKEYE ROLLING MILL COMPANY

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Builders of Pittsburg Standard Dry and Wet
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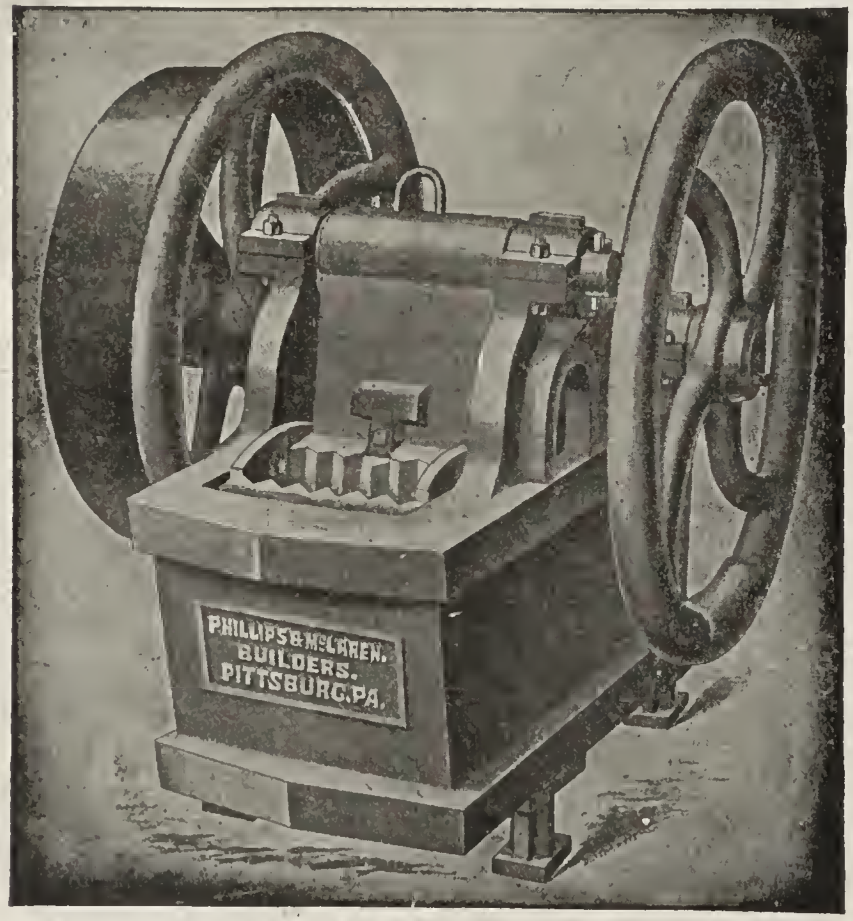

the bids will be called in within a short time. It is thought that the new plant can be in operation by June 1.

The Louisville (Ky.) Fire Brick Works has filed amended articles of incorporation, increasing its capital stock from $150,000 to $250,000.

Gordon Bell has been appointed resident manager of the Nebraska City (Neb.) Brick Company, a branch of the Western Brick & Supply Company.

The Champlain Brick Company, of Mechanicsville, N. Y., has elected John F. Norman, president; G. T. Griffin, vice-president; Charles E. Hoskins, secretary and treasurer.

More than 100 men will be put to work at the plant of the Muskogee (Okla.) Vitrified Brick Company, when it shapes up to capacity output. At present, sixty-five men are employed.

Frank Dautremont, tile and brick manufacturer of Monticello, Iowa, has received a contract to furnish the brick for the new school gymnasium that will be erected in Monticello.

A loss approximated at $12,000 was sustained by the South Fork (Pa.) Fire Brick Company, through a fire which destroyed nearly all of the frame structures in and around its plant.

The Charlotte Brick Company, of Fort Mill, S. C., has increased its capacity by the addition of new machinery and a general overhauling of its plant. It now makes 125,000 brick daily.

The Continental Brick Company of Aledo, Ill., has started up for the season with a large amount of unfilled orders ahead. An output of more than 1,000,000 brick per month will be made during the year.

Robert L. Findlay, formerly of the Pfotenauer-Nesbit Company, of New York city, has been appointed salesmanager of the Hay-Walker Brick Company, with offices at 470 Fourth Avenue, New York.

The Duffney Brick Company, of Mechanicsville, N. Y., has elected Dr. Joseph M. Purcell, president; Alvin E. Van Vechten, vice-president; Michael J. Mahoney, secretary and Richard A. Moore, secretary.

E. B. Wentworth and I. E. Hunter are now the owners of the Pawhuska Vitrified Brick Company, of Pawhuska, Okla. The plant has a daily capacity of 75,000, and are preparing to make a special silo block.

At the annual meeting of the Grinnell (Iowa) Brick & Tile Company, the following officers were elected: Grant Ramsey, president; William Vogt, vice-president; C. A. Smith, secretary and H. F. Lanphere, treasurer.

The stockholders of the Kanopolis (Kas.) Clay Products Company met recently and elected G. J. Ollman, president; John Yantz, vice-president; J. J. Kuntz, second vice-president; W. R. Seaver, secretary and treasurer.

At Avolea, Sask., there is a good opening for a brick plant. The town is growing rapidly and is hampered for fireproof material by the distance from which it must be brought. Good fireclay has been found in the town limits.

The Central Connecticut Brick Company, of New Britain, Conn., recently elected the following officers: Joseph Towers, president; George H. Todd, of Hartford, Conn., vice-president; F. H. Holmes, secretary and R. O. Clark, treasurer.

C. Klose & Co., of Lincoln, Neb., control the Doniphan (Neb.) Brick Works, a plant with a daily capacity of 40,000 to 60,000 and which produces a highly satisfactory product. H. E. Funk is local manager, and R. A. Smoot, formerly of Hastings, Neb., is foreman.

Harlow D. Savage, who had been connected with the Ashland (Ky.) Fire Brick Company for more than seventeen years, severed his connection with that company March 1st to accept a position with the American Arch Company, 30 Church Street, New York.

The Banfield Clay Company, of Irondale, Ohio, placed its plant in operation March 1, being equipped to manufacture a full line of burned clay products, including building block, fireproofiing, flue-lining, mill brick, wire-cut paving brick and repressed paving block. The daily capacity is 200 tons.

Taking advantage of the new ruling in the Canadian parcel post, the London (Ont.) Brick & Tile Co., Ltd., mailed samples to many of the prominent officials in Ontario, as well as to architects and contractors in the territory to which it ships. The packages all bore the imprint "Carbex-Made-In-London."

Contracts for the construction of two shafts, which will extend some 400 feet into the earth, have just been closed by the Salina Coal and Clay Company of Salina, Pa., with the S. J. Harry Company, general contractors, of Connellsville, Pa. These shafts will be used in connection with the coal property near Salina. Machinery for the work has been shipped.

The Adamantine Clay Products Company of Martinsburg, W. Va., reelected all of its old officers and directors at the annual meeting held March 9th. They are C. G. Cushwa, president; Lee M. Bender, vice-president; A. D. Darby, secretary-treasurer; J. P. Kearfoot, Levi N. Porter, S. H. McKown, George Ryneal, Jr., John A. Rickard, G. W. McKown and P. Otto Schneider. The plant, which is situated at North Mountain, W. Va., is reported to be in splendid condition, repairs and improvements having been made during the Winter shut-down.

The Shale Products Company, located at Inglewood, Ont., near Toronto, was organized in 1912 by T. H. Graham, J. M. and J. R. Scott, and M. B. Cheney. The latter is a graduate of the Ohio State University and is a ceramic engineer. This company has built a new dam and established a hydro-electric power plant. The shale covers an area of 200 acres and to an elevation of 200 ft. As it lies on the surface, no stripping is required, a tramway conveying it to the plant. After grinding the clay is discharged over three piano-wire screens into a storage bin, which holds enough clay to make 150,000 brick. A chain elevator delivers this clay to the feeder. The drying is done in a coal-fired, radiated heat drier, of

100,000 brick capacity. An eighteen chamber gas producer kiln is used, machinery, dryers and kiln all having been installed by the C. W. Raymond Company of Dayton, Ohio.

George F. Shurtleff, of 299 Madison Avenue, New York, N. Y., wants to be put in touch with manufacturers of drain-tile mak- 5 x 12.

Walter S. Walton, 7 Ocean St., Beverley, Mass., wants information relative to the building of baker's ovens out of brick.

The American Brick & Tile Company, of Mason City, Iowa, has filed amended articles of incorporation. A. H. Gale is president.

The West Virginia Clay Products Company of Charleston, W. Va., is in the market for belting, for cars and tracks, screens and shovels (hand).

The Lockport (N. Y.) Shale Brick Company will begin building on the 15th inst. It is expected that the buildings will be completed by Aug. 1st.

The McArthur Brick Company of McArthur, Ohio, is interested in a 9-ft. dry-pan. A second-hand one would suit the purpose if in good condition.

John Rebold, of Okmulgee, Okla., will head a new brickmaking concern that will operate at Mosgrove, Pa. The clay deposits and site have been purchased.

The Croxall Pottery Company of East Liverpool, Ohio, has changed its name to the American Porcelain Company, and has increased its capitalization from $7,500 to $30,000.

Allen & Shultz of Waynesfield, Ohio, are in the market for ing machinery, it being his intention to make one size only—an automatic counter to place on a drain tile cutter.

The size of the shipment and the fact that it was made the first day that brick was admitted to parcel post shipment, created a great deal of comment in London and vicinity.

H. Day, of Hamilton, Ontario, has completed plans for the construction of a mammoth brick plant at Niagara Falls, Ont. Buiding operations will be started in the early Spring.

What is said to be the largest contract ever let for brick paving in Florida was recently secured by the Georgia Engineering Company. It calls for a pavement 18 feet wide, and six miles long.

The Standard Clay Refining Company, of Sacketts Harbor, N. Y., has been incorporated with a capitalization of $6,000. George B. Lyons, Ida M. Fitzgerald and James L. Frank, all of Sacketts Harbor, are the incorporators.

The Worcester (Mass.) Floor and Wall Tile Company has been incorporated with a capital of $10,000 to carry on a manufacturing business at 100 Commercial St., Worcester, Mass. The officers are: President, Carl Dodge; treasurer, Herbert E. Bullard.

Incorporation papers have been filed by the Diamond Fire Clay Products Company of Inez, Converse Co., Wyo. The capital stock will be $80,000 and the directors are Werner Schupbach, William F. Pflaeging and Thomas F. McPherson, all of Inez, Wyo.

The Czarnikow-Rionda Company of 112 Wall St., New York, N. Y., wants to correspond with firms equipped to make clay analysis, and with manufacturers of sewer-pipe making machinery, makers of mould and sand-moulding machinery and clay gathering devices.

D. G. Moomaw, of Stonecreek, Ohio, who has been operating a two-kiln brick, tile and building block plant, using surface clay, has recently opened a shale deposit and will be in the market for new machinery and equipment to work the new material and increase capacity.

W. E. Pope and C. W. Gibson have organized the Corpus Christi (Tex.) Sandlime Brick Company and will build a plant near the line of the San Antonio, Uvalde and Gulf Ry., near the western boundry of the city of Corpus Christi. C. W. Gibson is president of the Corpus Christi "Democrat."

F. Massart, Bordeaux, France, wants catalogues of American kilns and is interested in knowing the advantages of intermittent firing, as practiced in the United States. He wants to receive comparisons as to our methods and those used in Europe, particularly the continuous-fire kilns that are used there.

Rueben Rink Decorating and House Furnishing Company of Kernesville, N. C., wants information on and machinery for making cement and sand-lime brick. He says that he has no suitable clay for brick and is considering going into the manufacture of either cement brick or sand-lime brick—probably the former.

George P. Herrold, of the Vitrified Brick Company, of Fresno, Cal., has written the Chamber of Commerce, of Gilroy, Cal., that he is ready to erect a plant at Gilroy as soon as the right of way and option on the site is handed over to him. These were promised by the Gilroy Chamber of Commerce, some time since.

The Trumbull Brick Company (a subsidiary of the Portage Silica Company), of Warren, Ohio, will change its equipment so that hollow block will be the sole product, instead of brick, as heretofore. Other installations will be made that will increase the capacity of the plant. The present equipment is eight kilns wit ha daily capacity of 200,000 brick.

Port Homer, Ohio, is to have a new sewer pipe factory and active work on the construction of the buildings and the sinking of the coal and clay shafts will commence within a few weeks. The first public inkling of the proposed enterprise came when it was announced that H. H. Smith & Co., a real estate concern, had closed a deal for the Sarah O. Miller and E. W. Housen farms at Port Homer, comprising approximately 140 acres. The coal and clay on these lands is said to be exceptional and the site for the factory is a good one. Little can be learned just now, as to the size of the factory, or the amount of money to be expended in its construction, but it is said

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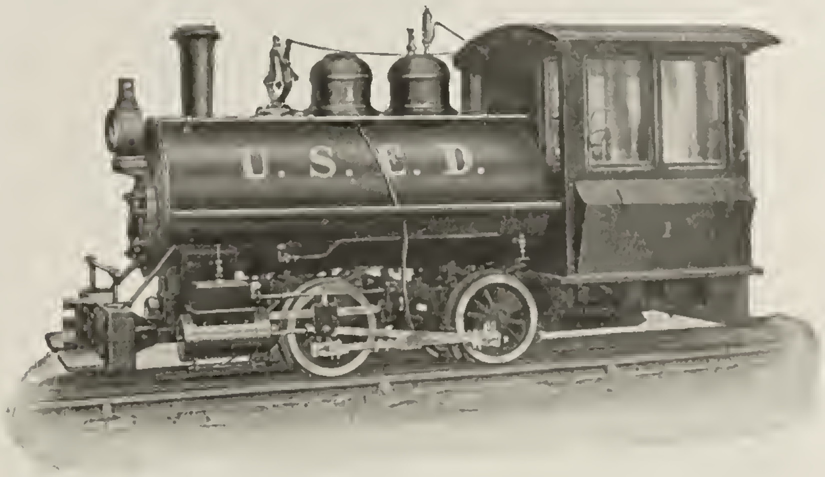

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and will reduce costs of delivering your material to your plant, thus increasing profits.
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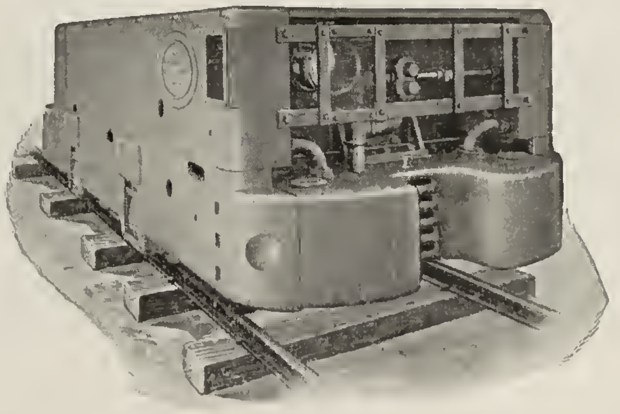

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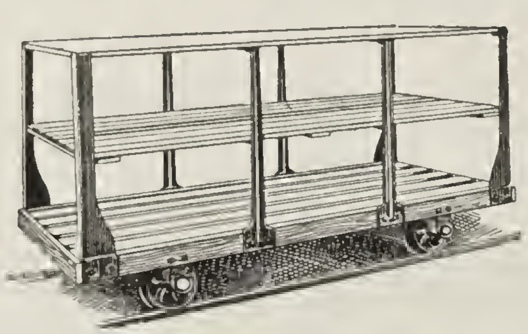

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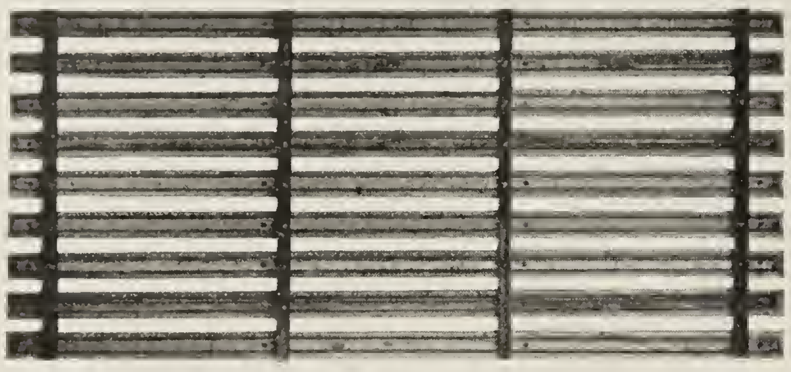

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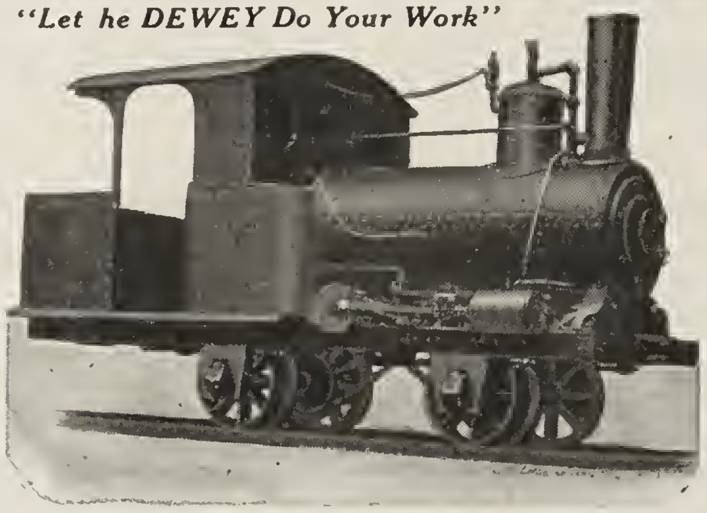

The Boiler of the DEWEY

The Borden Brick & Tile Co., Goldsboro, N. C., is using a DEWEY locomotive. It discarded the mule-driven car and declares it not only got an increased efficiency but reduced the cost of hauling.

This concern hauls eighteen cubic yards of clay to a load on a trip of one and a half miles.

How many mules would it take to do this same thing and how long would it take them to do it?

It is our own special design. It has unusually large capacity, is a quick steamer, and is economical in fuel consumption.

These three characteristics have made the DEWEY especially adapted to clay pit work.

Strong, Safe, Long-Lived

The DEWEY boiler is designed to reduce to a minimum the numerous angles and corners and pockets which serve as collecting places for mud and scale—distressing features about every standard locomotive boiler.

The DEWEY boiler, therefore, is stronger, safer and longer-lived and does BETTER work than the regular types.

The DEWEY sells for several hundred dollars less than any of the standard type locomotives of the same size and weight............... **$1200**

DEWEY BROS.
Goldsboro, N. C.

that the plant would be a large and thoroughly up-to-date one, built to manufacture a general line of fire clay products.

The Greenfield (Ind.) Brick Company has been dissolved.

The Farr Brick Company of Cleveland, Ohio, has increased its capitalization to $3,000,000.

Brooks Brothers have leased the brick yard at Staunton, Va., formerly owned by Stephen Goley, who died recently.

Aug. H. Johnson & Sons of Mediapolis, Iowa, want names and addresses of firms maufacturing brick-bat crushers.

The Hill & Karnes Brick Company, of Paducah, Ky., has taken a contract to supply 1,000,000 common brick to the new asylum for the insane at Bolivar, Tenn.

Steel frame, brick buildings are going up at the plant site of the Manitowoc Clay Products Company, of Manitowoc, Wis. More than 700,000 brick will be required in one building alone.

Two carloads of machinery have arrived at Visalia, Cal., for the new brick plant that is being erected there for the Pioneer Brick Company, of which I. G. Etzenhouser is general manager.

The Choctaw Brick Company of Mansfield, Ark., has re-elected W. O. Caldwell, president; C. W. Jones, vice-president; H. B. Salls, secretary; P. A. Ball, treasurer and T. P. Edwards, general manager.

Charles P. Stevens Dead.

Charles P. Stevens, president and general manager of the Acme Brick Co., of Cayuga, Ind., and a resident of Evanston, Ill., for nearly twenty-five years, died Monday, March 30, at his home, 2103 Orrington avenue, Evanston, after an illness of only six days. Mr. Stevens, in company with his son, Douglas Stevens of Danville, Ill., who is superintendent of the Acme plant, attended the Open Price Policy meeting of the Central West clayworkers in Chicago, March 19, and was, at that time, in his usual good health.

Mr. Stevens was formerly city treasurer of Evanston, was prominent in Masonic circles and for years had acted as chaplain of the blue lodge. He was born in Ashburham, Mass , and was 73 years of age. He was an active member of the First Methodist Church of Evanston. Mr. Stevens leaves a widow and four children, Charles N. Stevens, cashier of the City National Bank of Evanston; Douglas F. Stevens of Danville, Ill.; Mrs. Edward F. Webster of Evanston and Mrs. S. A. Dickie of Pittsburgh. The funeral was held Wednesday, April 1, at the residence, with interment in Rosehill cemetery, Chicago.

D. V. Purington Dies in South

(*Continued from page 806.*)

Galesburg, Ill., and Mr. Kimbell the S. S. Kimbell Brick Co., dealers in building brick. Both of these concerns are still in existence, although death has taken the founders of each firm, Mr. Kimbell dying several years ago.

The Purington Paving Brick Co. not only sold their manufactured product for paving purposes, but also made for facing or building purposes. Offices were opened in Chicago and are still maintained today.

"Purington Continentals"—end-cut, semi stiff-mud brick that were in a class just between "selected common" and face-brick, were the trade name given the Purington face brick, and dominated the Chicago face-brick market for a number of years, and had a strong effect upon the selling price of the latter commodity. Millions of these brick were sold annually, and many of Chicago's prominent buildings are faced with them. One of the best known is the La Salle Hotel.

It is said that a greater number of "Purington Continentals" were used in Chicago during the years that they were for sale in this market, than the product of any other one factory in the same length of time. The price was low, being $12 or $13 delivered at the building, and the popularity of this brick and its low price made Chicago a bad market for face-brick manufacturers whose cost of production was higher and whose freight rate was not as favorable.

The plant at Galesburg, Ill., finally abandoned the manufacture of this brick, various explanations being given for this action, but Chicago architects still specify "Purington Continentals" as a standard of quality, coupled with a low selling price.

Mr. Purington kept his residence in Chicago all these years, it being at 4800 Kenwood Avenue the last few years. This property he sold two or three years ago. He took an active interest in the business and political life of the city and in 1879 was elected to the Board of County Commissioners, serving two terms, the last one as president.

This activity manifested itself, also, in the National Brick Manufacturers' Association, for he was the second president elected by this organization—being inducted into office in 1887. He kept up an active interest in the affairs of the association and at the time of his death, although not actively engaged in the brick business for several years, had just been re-elected as a member of the technical committee of the association, serving with Professors Orton, A. V. Bleininger, Ross Purdy and W. D. Richardson. He, also, was a member of the Builders' Club of Chicago, serving at one time as its president.

Mr. Purington retired from the Purington Paving Brick Co. several years ago. For a short time he engaged in other business, but his ill health forced him to quit active work. He purchased a Winter home at Ocean Springs, Miss., and for a time spent his Summers at his home in Chicago and his Winters along the Gulf Coast.

Two years ago he sold his Chicago residence and, with Mrs. Purington, took a trip through Europe, returning to Ocean Springs with the idea of spending the remainder of his days in that delightful climate. Last Summer he occupied most of the Summer season on a trip through the East.

The death of Mr. Purington removes one of the most prominent and influential men in the clay product industry and it will be hard to fill the vacancy left by his decease.

PAVING BRICK GOSSIP.

At Conneaut, O., the directors of the Dunn Wire Cut Lug Brick Co., have organized by electing the following officers: President, A. W. Pelton; vice-president, R. F. Lininger; treasurer, G. M. Whitney; secretary, Blanche Kinner; general manager, F. B. Dunn.

T. J. Underwood, county comptroller at Washington, Pa., is now receiving bids for vitrified paving brick or blocks, to be used in the improvements of 2,100 square yards of roadway, near Courtney, Pa., and 2,740 square yards of roadway which is to be paved at Huston, Pa.

The Mack Manufacturing Company has started three of its brick plants at New Cumberland, W. Va., on making paving blocks. The plants in operation are Etna, Rockyside and Crescent. Stocks are low and they have some big contracts for early Spring shipments. The coming season promises to be a big year in the paving block business.

The Meredith brick plant, at Reynoldsville, Pa., has been greatly hampered in its operations during the past few months by the cold weather, but is now running again with a small force and will increase to full capacity as soon as the weather opens. The outlook of the 1914 business is bright and unless something unforeseen occurs, the plant will operate steadily. The company has a fine grade of shale for the manufacture of pavers and face brick.

Within a month contracts will be let by the County Commissioners of Westmoreland County, Pa., for the paving of 17 miles of roadway in that county. This is said to be the largest job of the kind ever let in one county at one time in Pennsylvania. The specifications for these roads have been placed in the hands of the contractors, and already some tenders have been made. This contract means that millions of pavers will be used in that one county. It is not likely that these 17 miles will be finished this year, although in Armstrong County last year, a contractor established a record of building 11 miles.

The Kenilworth Brick Works, located between Congo and Newell, W. Va., one of the largest brick manufacturing concerns of the Panhandle district, has suspended operations owing to some needed repairs, which were completed April 1. The yards are owned by Captain John Porter of Kenilworth. The machinery which was used at the old Globe Brick Works, has been transferred to the Kenilworth plant and greatly increased. Several new buildings were erected.

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R. H. Precipitated Carbonate of Barytes

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Lehigh Portland Cement Company
Allentown, Pa. and Chicago, Ill.
Lehigh Portland Cement
Capacity 2,000,000 bbls. yearly

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Know Exactly What the Results Will Be

They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.

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Automatic Feeder
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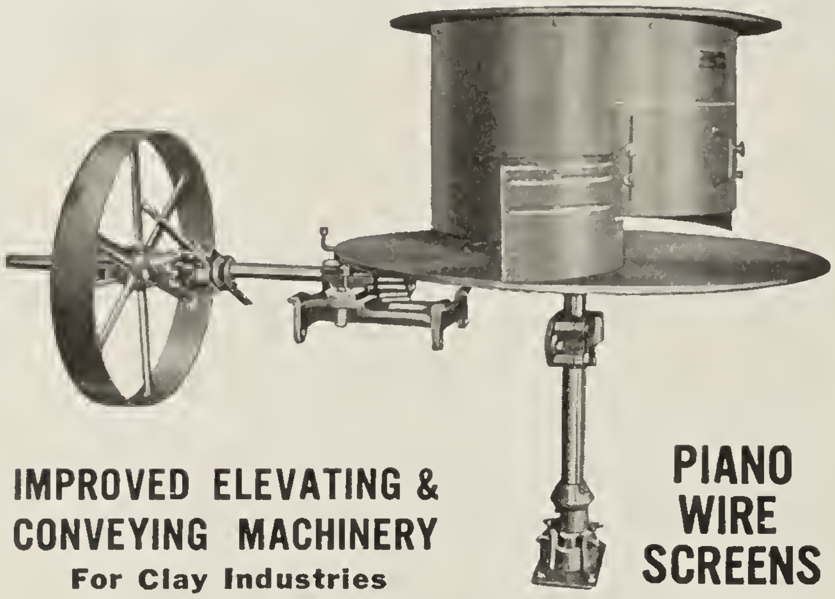

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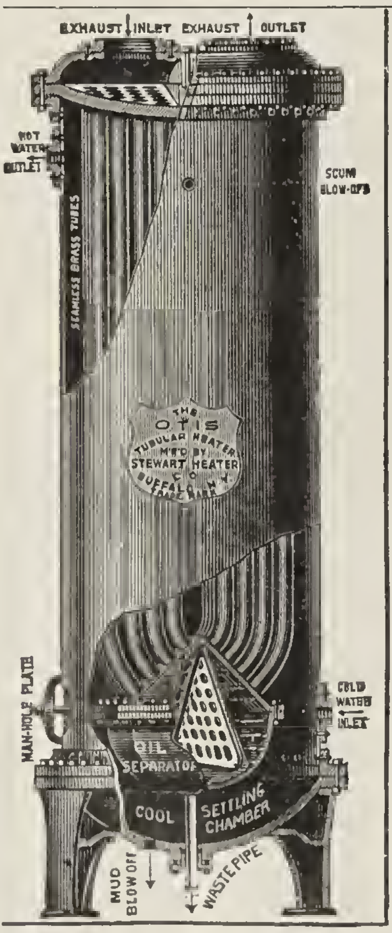

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To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust,* so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the. *additonal expense* of an *eliminator.*

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The Stewart Heater Company,
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Freight Tariffs

IN THE March 7 issue of this journal an article appeared relative to the protest that had been filed by the Blackmer & Post Sewer Pipe Company relative to the ruling that requires sewer pipe manufacturers to mark each piece of pipe shipped, with the name of the consignee and the destination. This has brought a letter from a correspondent in Philadelphia, who writes as follows:

"The manufacturers of sewer pipe in the east have been doing this very thing for the past two years and the only concession we have been able to obtain is a ruling that instead of placing a label upon each piece of pipe or fitting, we have only to use one label on every tenth piece, so making it necessary to use only twenty labels on a shipment of, say, two hundred pieces. I am sending you a letter issued by the Industrial Traffic Association, an organization composed of a large number of manufacturers who have sidings connected with the different railroads, which are used not only to receive raw material, but to load out the finished product. This association has entered a protest with the Interstate Commerce Commission, against the attempt on the part of the railroads to inaugurate a charge for 'spotting' cars on these so-called 'industrial sidings and upon the decision of the Interstate Commerce Commission will rest, not only the question as to whether these eastern manufacturers will be made to pay a charge that they have not had to pay hitherto, but as to the whole country—for if the eastern roads be successful in their demands, there is little doubt but that the roads of the middle west and west will use the decision as a precedent for a similar ruling in that territory."

The letter above alluded to is one that will interest every manufacturer of clay products who has, or who hopes to have, a private siding. It reads:

"This Association was retained by and appeared in the interests of a number of shippers, before the Interstate Commerce Commission at a hearing recently held in Washington, D. C., for the purpose of determining whether carriers were justified in making a separate charge for spotting or placing cars on private side tracks, in addition to the rate for the line haul. Attorney for the Interstate Commerce Commission, Louis D. Brandeis, is evidently of the opinion that a charge of some sort should be made for this service, which he sees fit to call 'free service' and various amounts, ranging from 50c to $2.50 per car, have been suggested. If the Commission sees fit to allow carriers to impose this additional charge for spotting, it will work serious hardships on a large number of shippers in Philadelphia and adjacent territory. It is manifestly unfair to require a shipper located on a private side-track to pay an additional charge for bringing the car to the point where it is to be loaded or unloaded and we have made a vigorous protest against the proposed charge, with the result that another hearing will be taken, probably in Philadelphia, when our clients will have a chance of presenting further evidence on their own behalf."

The following changes have been made in freight rates that affect brick, tile, hollow block and other clay products, since the last issue in which changes were published—March 7. All of the changes given below are now effective:

From Eastern Points.

From Beach Ridge, N. Y., brick, building and paving, building tile and drain tile, to Utica, N. Y., $1.75 per net ton.

From Beech Creek, Bigler, Clearfield, Clymer, Faunce, Irvona, Karthaus, Krebs, Lock Haven, Lumber Mahaffey, Mill Hall, Monument, Orviston, Patton, Philipsburg, Snow Shoe, Wallaceton and Woodland, Pa.; brick and articles taking same rates, to Staunton, W. Va., $3.20 per net ton.

From Brooklyn and York, Pa., common and pressed brick, to Hoboken, N. J., $2.00 per net ton; to Jersey City, N. J., $1.65 per net ton; to Newark, N. J., $1.60 per net ton.

From Brooklyn and York, Pa., common and pressed brick, to New York City, N. Y., $2.00 per net ton.

From Eagleswood, Fords, Keasbey, Maurer, Metuchen, Perth Amboy, Valentine, N. J., and other New Jersey points, brick, all kinds (except enameled) to Firthcliffe, N. Y., $2.40 per net ton; to Ellenville, N. Y., $2.60 per net ton; to Monticello, N. Y., $2.60 per net ton.

From Kaulmont and St. Marys, Pa., brick and clay, to Geneva, Lyons and Penn Yan, N. Y., Knoxville. Marsh Creek and Wellsboro, Pa., $1.75 per net ton.

From Keene, N. H., brick (common), to Westboro, Mass., $2.70 per M. brick.

From Kenova, W. Va., brick, to Bettendorf, Camanche, Clinton and Davenport, Iowa, $2.65 per net ton—basis $1.65 Chicago.

From Philadelphia, Pa., brick (common), to Elmer, N. J., 90c per net ton.

From Middle West Points.

From Ashland, Ky., brick, to Bettendorf, Camanche, Clinton and Davenport, Iowa, $2.65 per net ton—basis $1.65 Chicago.

From Ashland, Ky., to Coal Grove and Ironton, Ohio. Kenova, W. Va., Portsmouth and Sciotoville, Ohio, brick.

From Athens, Glouster and Trimble, Ohio, brick and articles taking same rates, to Huntington, W. Va., 80c per net ton.

From Coal Grove, Portsmouth and Sciotoville, Ohio, brick. to Bettendorf, Camanche, Clinton and Davenport, Iowa, $2.65 per net ton—basis. $1.65 Chicago.

From Drake, Ill., Clay, to Depue, La Salle and Peru, Ill., $1.00 per net ton.

From Terre Haute, Ind., brick and articles taking same rates, to Aurora, Batavia, Elmhurst and Geneva, Ill., $1.25 per net ton.

From Western Points.

From Altoona, Buffalo, Coffeyville, Caney, Pittsburg and Troy, Kas., and other Kansas points, brick (except bath and enameled), including fire clay and hollow building tile, to Linwood, Fremont, Seward and Wahoo, Neb., 10½c per cwt.

From Blakeley, Minn., brick and articles taking same rates, to Ashland, Bayfield, Superior and Washburn, Wis., and to Duluth, Minn., 7c per cwt.

From Fort Scott, Kas., brick, fire clay and hollow building tile, to Baxter, Kas., 5c per cwt.

From Harrisville, Utah, brick, to Superior, Wyo., 17c per cwt.

From La Junta, Colo., brick, to Big Bend, Colo., 6c per cwt.; to Minnequa, Colo., 5c per cwt.; to Trinidad, Colo., 8c per cwt.

From Liberal, Mo., brick, fire clay and hollow building tile, to Baxter, Kas., 5c per cwt.

From Minneapolis, Camden Place, St. Paul and Minnesota Transfer, Minn., brick (common or pressed), hollow, fire and paving, and except bath and ornamental, and articles taking same rates, to Gwinn, Ishpeming, Marquette, Munising, Negaunee and Princeton, Mich., 10c per cwt.

From Pittsburg, Kas., brick, fire clay and hollow building tile, to Baxter, Kas., 3¾c per cwt.

From Rocky Ford, Colo., brick, to Amity, Colo., 8c per cwt.; to Big Bend, Colo, 7c per cwt.; to Bristol, Colo., 8c per cwt.; to La Junta, Colo., 5c per cwt.; to Las Animas, Colo, 5c per cwt.

From Spirit Lake, Iowa, brick, to Sioux City, Iowa, 6.1c per cwt.

From St. Louis, Mo., East St. Louis and Belleville, Ill., brick, vitrified, to Copperhill, Tenn., $3.45 per net ton.

From Wrenshall and Windgate, Minn., brick, to Baraga, Bergland, Hancock, Houghton, Ishpeming, Marquette, Negaunee and Trout Creek, Mich., 7½c per cwt.; to Sault Ste Marie, Mich., 10½c per cwt.

From Pacific Coast Points.

From Aberhill, Corona, Elsinore, Los Angeles and Slauson, Calif., pressed brick, to Seattle and Tacoma, Wash., 47½c per cwt.

From Clay City, Wash., clay building blocks, to New Westminster and Vancouver, B. C., 11c per cwt.; to Sedro Woolley, Wash., 11c per cwt.; to Victoria, B. C., 16c per cwt.; to Wenatchee, Wash., 14½c per cwt.

"Bases for Freight Charges," a Valuable Book.

The LaSalle Extension University, of Chicago, has published a book that will be particularly interesting and valuable to men who are affected by freight rates (and who is not?) in "Bases for Freight Charges," by C. L. Lingo, traffic manager of the Inland Steel Company. The value of a traffic man's services to a concern is measured not only by his technical knowledge and understanding of railway tariffs, but also by his comprehensive application of such rules and practice to the business in which he is engaged. He must know how to put these rules into effect legally, and how to make use of all the means that are available or can be devised for the betterment and development of traffic. It is this knowledge that must be garnered by him who would be successful in this field of transportation and when he can take advantage of Mr. Lingo's experience he is fortunate. Among the topics discussed are Freight Tariffs, Rates, Weights, and Special Charges. This treatise is one of a series of transportation publications which will form the basis of the LaSalle Extension University course in Interstate Commerce and Railway Traffic.

New Tile Dealers' Association.

The Southern District Association of Mantel and Tile Dealers was organized at Houston, Tex., in February. George Eubanks, of Atlanta, Ga., was elected president; W. A. Currie, of Birmingham, Ala., vice-president and Thomas C. Harris, of Atlanta, Ga., secretary-treasurer.

Kinnison Writes for "The Claycrafter"

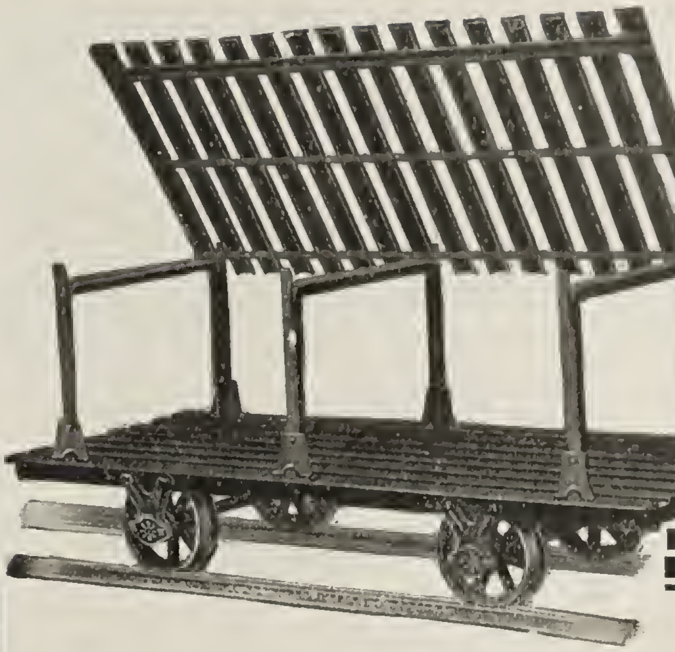
An excellent article on drying clayware appears in the current number of "The Claycrafter," the house organ of the C. W. Raymond Company. It is by C. S. Kinnison, of the Bureau of Standards, at Pittsburgh, Pa., and technical editor of "Brick and Clay Record." In the same number of "The Claycrafter," under the heading "The 'Graveyard Stew,'" seven items of recent concrete failures are given. Among the Classified Ads is one that calls for a salesman who can sell 20,000 face brick a day.

S. B. Dobbs Opens New York Office.

A strong combination of well known brick men will contend for its share of the face-brick business in Greater New York this year. It is made up of C. J. Henderson, formerly sales-manager of the Harbison-Walker Refractories Company in New York; Daniel B. Frazier, formerly secretary and treasurer of the Atlantic Brick Manufacturing Company, of Mays Landing, N. J., and S. B. Dobbs, who has, for many years, been identified with the face-brick business in Philadelphia, Pa. The offices of the new company, which will be known as the Henderson, Frazier and Dobbs Company, will be in the St. James Building, 1135 Broadway, New York.

Columbus Brickmaker Goes to Winnipeg.

John McAlister, formerly of Columbus, Ohio, has gone to Winnipeg, Manitoba, to take charge of the new sewer-pipe plant that has been erected there by G. H. Archibald & Company. Mr. McAlister is well known in Western Canada, having had much to do with the building of the Trigilus plant at Calgary.



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Clay Feeder

Is a machine with a purpose. It is used not only for **efficiency** but for decided **economy**—saving you upwards of $500.00 a year in your clay plant. While it saves you real money it also permits a more uniform mixture of your material and therefore improves your product.

You may dispense with "something else" but not with The Rust Clay Feeder—it's **indispensable.** Shall we send you more evidence?

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Chase Improved Flexible Bearing Folding Deck Dryer Car

See this car before placing your order.
We also manufacture a full line of Side Dump, Bottom Dump and General Purpose Cars, Transfer Cars, Turntables, Switches, etc.

The Chase Foundry & Mfg. Co., Columbus, O.

Trade Reviews

NEW YORK.

BY ALLEN E. BEALS.

Special Staff Correspondent.

MARKING the opening of the 1914 building season, which officially began on March 15, is the hardest drive from a selling and promotion standpoint ever attempted on the part of a single clay products interest in the East. The movement which is being quietly, though none the less strenuously made consists in trying to connect every large city within a hundred miles of New York with burned clay conduits through which to run telegraph, telephone and railroad signal and switch wires, and thus avoid a repetition of the terrific loss caused by the slush storm of March 1st and 2nd in New Jersey, eastern Pennsylvania and southern New York. The story leaked out of the sales department of one of the big eastern clay products selling companies a few weeks ago and substantially is as follows:

The unemployed problem in New York has been a particularly perplexing one during the present Winter. President Wilson was informed that 350,000 men in New York City alone were out of jobs. In the grand accumulation of idle humanity there was at least one fellow with an imagination that was not bounded by the rule of three and a time clock. He landed a job in one of the big clay products companies as stenographer to the salesmanager. The jobless man that was put into the manless job lived in the suburbs. Monday morning, the second day of March, found him isolated from the source of his income. He could not get to New York by train, boat, bob, auto or foot. Everything was locked up in as complete a tangled telegraphic ice pack as mind of man could imagine. So he went home, got his camera and took some pictures. He specialized on fallen telegraph poles, tangled wires and stalled trains. The remainder of the day he spent in developing his films.

Tuesday he reported back to the office for work. In his pocket he had his pictures and in his brain an idea. When he saw the manager he asked him if he had any conception of the damage that had been wrought by the storm. The manager lived in a New York apartment and confessed ignorance of the havoc. His morning paper had told him that the trains were stalled and a food famine was imminent. He looked at the young man's pictures with considerable interest, commented upon the severity of the storm, handed the pictures back and made a move as if to wade into his two days' correspondence stacked upon his desk.

"If the railroads could be induced to use our clay conduits to string those wires under ground along their rights of way, that could not happen," the new stenographer commented.

The idea hit the manager like a ton of brick. Ten minutes later there was a conference. All the statistical data concerning cost of poles, cross arms, cost of transporting them, depreciation, loss of efficiency through exposed wires and electrical "grounds" causing loss of current, insulators and fire risk were compiled during the balance of the day.

On four railroads entering New York from New Jersey about 15,000 poles were down. On the Central Railroad of New Jersey, also, 1,789 were reported down between Jersey City and Philadelphia, out of 2,119 standing Saturday night. The Pennsylvania had more down, the Erie reported about the same number as the Jersey Central and the Lackawanna was about to go into the market for 3,900. Telegraph poles cost about $4 apiece bought in railroad quantities. That means an outlay due to one day's weather devastation of $60,000. Good copper telegraph wire sells at approximately 5 cents for No. 12 in railroad quantities: orders given by one railroad alone, the Jersey Central, for fifty-five wires, covering the ninety miles between New York and Philadelphia, (approximately 5,000 miles of wire) represented an amount many times larger than the cost of the poles. Adding the tremendous loss due to tied up traffic, stalled trains, etc., that is liable to result from storms in Summer and Winter and the penalty for using wooden telegraph poles that deteriorate in value after ten years' use the outlay runs into millions of dollars. It was the manager's cue to play a long shot for the railroads on a pure economy plea at a psychological moment.

At present it is the policy of the railroads to make temporary repairs. The lines leading out of New York toward the west resemble a military stockade with their patchwork of spliced, damaged telegraph poles. In the meantime the purchasing departments of these roads are having dinned into their ears the advantage of using burned clay conduits that "Fire, nor Frost, nor even Time can destroy."

If the campaign of this company prove successful there will be a demand for burned clay conduit during the next few months that will prove a great boon to the industry in the east. It will be one of the improvements that the railroad will install as soon as the Interstate Commerce Commission approves the five per cent freight rate increase asked for.

The stenographer who used his head and brought back an idea to the office as the result of his enforced day's vacation is satisfied with the commotion he has stirred up in his office and the manager says that whether the deal goes through or not a stenographer with a creative imagination like that is out of place behind a Kohinoor and an Underwood.

To show how quickly action follows suggestion, an article that appeared in the New York "Tribune" of March 12, is given in full. It bears a Philadelphia date line and is as follows:

"The Pennsylvania Railroad Company took steps today toward placing its telegraph and telephone wires between this city and New York in underground conduits. The board of directors appropriated $300,000 to replace in vitrified brick conduits twenty-five miles of wires torn down by the recent storm and work will be started between Rahway and Trenton."

But what is one man's gain sometimes is another man's loss and in this case it is perfectly applicable to the common brick department. The storm completely tied up business. In one week only 119,000 brick was moved in the entire city. The normal is between 6,000,000 and 10,000,000. Prices quoted are nominal, the dealers and wholesalers being willing to accept business at marked concessions.

Of course, there will be a recovery and when it comes it will be sharp and decisive. The great concern of the wholesalers is to impress upon consumers in New York and vicinity that no matter how sharp this recovery may be, there is plenty of brick available for all the needs of the district for the remainder of the season. A week of warm weather will reopen the Hudson, Raritan and South Rivers to navigation and then large fleets, which have been lying under cover all winter, will make their way into the market. At present there are 79 barge loads or 9,620,000 brick in the wholesale market and approximately 10,000,000 lying about the city awaiting unloading and riding to job. More than 15,000,000 is available on barges for immediate shipment to this market.

CHICAGO.

BY WARFIELD WEBB.

Special Staff Correspondent.

WHILE orders for brick in this market are plentiful, there is the one temporary handicap toward actual progress, and while only directly affecting the common brick manufacturers, has indirectly tied up other work. This is the strike of the brick passers, a class of labor which, it is claimed, are paid a higher rate of wages in Chicago than is given similar labor at any point in the country—which means the world. It is openly claimed that the men themselves are not in sympathy with the strike, which came at a time when the yards were getting ready to resume operations after the Winter shut-down. This comes, however, at the end of a long period of peace between the brick manufacturers and the brick makers, and it is thought that some of the men holding "soft snaps" in the Union have felt it necessary to agitate something, lest the men wonder why they are there and what they are drawing expense money for. The agitation was expected by the brick manufacturers, and as a consequence, they are taking a very philosophic view of the matter. In the meantime, representatives of other labor unions are beginning to insist that something be done to end the strike, which, although brought by a small union, may be very far reaching in its effects.

When a reference is made to the common brick business in Chicago many do not really grasp the magnitude of this industry. There are in the neighborhood of fifty plants in this vicinity manufacturing common brick. The annual output is close to a hundred million brick, and most of these are used in building and sewer operations about Chicago. When one looks at this matter in its broad light, there is noted a vast industry here, one that has few equals in the entire country, possibly a single exception would be more nearly the truth. This, of course, is only one feature of the vast clay industry that is being increased each year as the city and its environs circles a larger territory.

The Illinois Brick Co. has quite recently purchased the plant of the Curtis Brick Co., including the entire business of that organization. The amount said to have been paid was $300,000. This plant is located at Grant Park, Ill., and was the last of two plants that were formerly operated by the Curtis company. Some months ago the Illinois Brick Company purchased the plant owned by the former company at Manteno, paying for the same $225,000. It is said that the plant at Grant Park will be enlarged and the output increased.

The acquisition of this plant gives the Illinois company possession of thirty-nine plants, though not all of them are being operated at this time. The Curtis people will in future devote all their time to the banking industry, with which they have been identified for some years.

The Jenkins and Reynolds Co. has sold its yard at Addison and Clark streets, to the Federal Baseball Club, to be used for a ball grounds. This necessitated a rapid change of stock and the same has been placed temporarily on the yard of Meachem and Wright Co., until another suitable location can be secured.

Mr. J. W. Moulding, of the Thomas Moulding Brick Co., whose prowess with the driver, brassie, mashie, putter and cleek are well known to many Chicago golfers, has very recently gained the Mississippi Coast Championship. The game was played at Gulfport, Miss., and the honor was one that deserves praise and speaks well for the ability of the new champion.

The offices of the Illinois Brick Co., on the ninth floor of the Chamber of Commerce Building, will be moved about April 15, to the Conway Building, just east of the former building, where practically the entire seventeenth floor will be occupied. The new location will be much more desirable and will also permit the company to arrange its offices in a manner that will be found more convenient.

The McRoy Clay Works, manufacturers of clay conduit, note with pleasure that the demand for conduit shows a steady increase. So far the outlook is brighter this year, and the severe storms that were encountered this Winter have only served to strengthen the demand for clay conduit. This company anticipates a very active year.

Face-brick has begun to show a better demand than it did during the latter part of February and the dealers report some orders booked, and a much greater number of inquiries. The work of relaying exhibits in the various dealers' display rooms is being finished up, and in a few days, the trade will be in shape to invite customers to see the new brick, laid up in new bonds.

A growing agitation for improved streets and highways in

GANDY

STITCHED
COTTON DUCK
BELTING

Will Not Stretch or Harden

Every Gandy Belt is carefully stretched on our own stretching frames and thoroughly seasoned for months, before it leaves our factory. In consequence, Gandy Belts stretch little, if any, in years of service, and the belt edges are always straight and true.

The careful stretching and seasoning—the high quality of material—the imbedded stitch running lengthwise of the belt—the special treatment which makes the belt water, heat, and steam-proof—these are a few of the reasons for the unqualified success of Gandy Belting for over 35 years. Gandy Stitched Cotton Duck Belting costs about one-third as much as leather, much less than rubber. A large stock of seasoned belts always on hand, enables us to fill most orders the same day. Send for a free sample of Gandy Belting and the testimonials of satisfied users.

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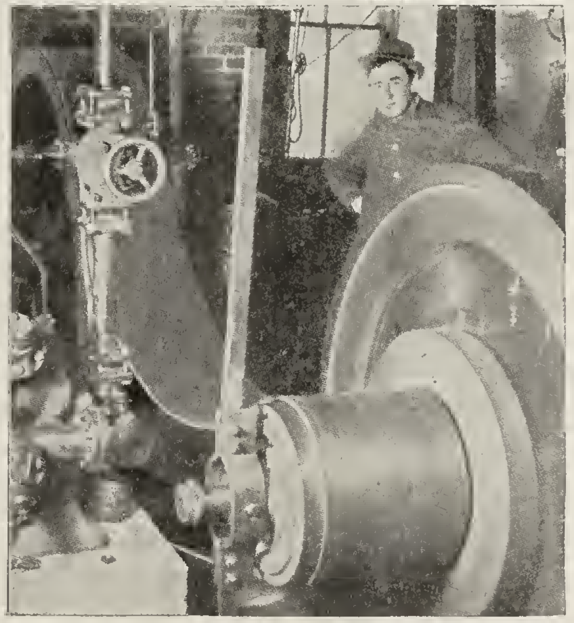

Is There Rosin in Cling-Surface ?

Cling-Surface contains **less free organic acids** than any other manufactured or natural substance suitable for the treatment of belts and ropes.

That Cling-Surface contains only the purest and most preservative materials is evident from reports of the following highest authorities in their respective fields and countries:

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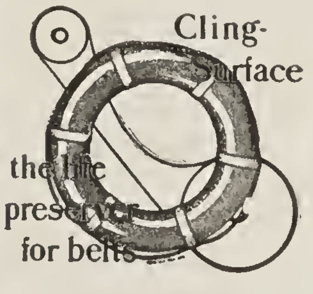
Dr. J. Gordon Parker, London.
Dr. Cartenmeister, Elderfeld, Germany.
German Royal Material, Testing office.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We might continue references endlessly, but the use of Cling-Surface all over the world for sixteen years has been the best demonstration of its basic value.

Every pound of Cling-Surface is guaranteed. It must satisfactorily stop slip and preserve the belts or ropes, or you can have your money back. Write for literature. 58

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Persistency

misguided is well represented by the man who was jailed three times for the theft of the same horse.

Persistency well directed, we believe, is confidence in having a good thing and continuously striving until the reader is sufficiently convinced to make a trial.

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LONGLIFE and MAXECON
CONVEYOR BELTS

reduce tonnage costs.

Our persistency in continuing to impress upon the readers of this publication the confidence we have in our ability to effect maximum economy and efficiency is but the outgrowth of years rich with experience in the manufacture and proper adaptation of our products.

Elevator Belts
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Factories: Akron, Ohio
Branches in All Principal Cities

There is nothing in Goodrich Advertising that isn't in Goodrich Goods

TRADE MARK

Makers of Goodrich Tires and Everything that's Best in Rubber

Chicago is observed and much good work in the cause of paving brick is being done by the Paving Brick Publicity Bureau. A part of the campaign, which W. M. Hanson, manager of the Bureau, has undertaken, is the education of tax-payers to the economic value of brick pavement, as compared to concrete, creosoted block, etc. This is being done in a careful and conservative way that is telling.

Reports indicate a good demand for sewer-pipe, conduits and building tile, and salesmen in these lines openly predict a much better Spring sale than marked the early part of 1913.

The Carey Brick Company reports a good call for common building brick and believes that contractors have been busy right through the cold snap. A great deal of inside work and patching has been done, and it is thought that a few weeks will see the beginning of a city-wide activity in the general contract work. This will, of course, result in many "hurry up" orders.

Orders are reported as being plentiful in the offices of the Midland Terra Cotta Company. Many of them are small, but the number and variety are sufficient to make a satisfactory volume, and, as this concern prefers these small orders at this time, everything is a little bit of all right in their offices. With a busy plant, working on orders taken at good prices, there is reason for some congratulation.

The Kimbell-Hill Brick Company, the latest addition to Chicago's brick selling force, is anxious to obtain a good line of red face brick, in both smooth and rough textures, as well as a moderate priced end-cut or side-cut paver in building brick size.

LOUISVILLE, KY.

By G. D. CRAIN, JR.

Special Staff Correspondent.

WITH Spring close at hand, Louisville brick manufacturers and dealers are in an optimistic mood. After having gone through several months that were seasonably dull, they are now ready for what promises to be a big season. Prospects for business are unusually good. There is a large amount of building projected for the coming months and many of the proposed structures are to be of considerable size. Apparently, the distribution of business will be general, as all dealers have received many inquiries. Despite the competition of other materials, and the generous claims their manufacturers are making, at least as large a share as usual of the specifications drawn have called for brick. Most of the manufacturers improved the dull period by overhauling their plants, one or two still undergoing the process. None of them made any large changes, the bulk of the work being repairs and replacements.

The Hillenbrand Brick Manufacturing Company received one of the largest orders that has been issued in a long time when it was awarded a contract for furnishing 1,200,000 brick for St. Elizabeth's Roman Catholic church and school-building. The Hillenbrand works have just started up again after a layoff of several weeks for repairs, and this order will keep it busy for some time. The same concern was also selected to furnish 250,000 brick for the erection of St. Paul's church. Face and veneer brick were used in both buildings.

The Southern Brick & Tile Co., which recently reopened after having made a number of repairs, furnished the material for the plant of the Laib Company, a large wholesale concern handling mill supplies and plumbers' supplies. The order called for 300,000. The plant covers much ground, but is to be one story high. It will be one of the largest houses of its kind in the city, when it is completed.

Another order of monumental size was received by the Louisville Builders' Supply Company, which will furnish twenty-five cars of brick for the annex to be erected by the Seelbach Hotel. This annex will include 100 additional rooms and is another indication of the city's growth, as it is the second addition made to the same building within a very few years. This company also secured the contract for furnishing the brick on the new plant of the Grocers' Biscuit Company, one of the leading concerns of the kind in the city. This was filled with material obtained from the Coral Ridge Clay Products Company.

Other lines of clay work are also promising. M. J. Bannon, president of the P. Bannon Sewer Pipe Company, stated that there are a number of good prospects for pipe work. In addition to considerable pipe laying by the city, a quantity of large drainage propositions are to be undertaken soon, including one by Henderson County and another at Fulton, Ky. Bloomfield, Ratliff & Powell, a Winchester real-estate firm, recently placed an order with the Bannon company for eight carloads of 24-inch pipe to be used in draining the surface water on a subdivision just opened. Considerable drainage activity is also expected to be stirred up as the result of the fact that Fred F. Shafer, an agent of the drainage division of the United States Department of Agriculture, has been sent to this city to work among the farmers. Agriculturists in this section who want advice on tiling will be given his aid without charge. This lends great encouragement to the tiling movement, which has the hearty support of all authorities on good farming.

Donald McDonald, who was salesmanager of the R. B. Tyler Company, is no longer with that firm, having resigned to accept an excellent position with an Eastern house in a different line. He was generally considered one of the best brick men in Louisville. He has been succeeded by Howard H. Frazer, formerly assistant salesmanager, whose experience and ability should enable him to "make good."

The Union Cement & Lime Company has just taken on a large line of brick, including the products of the Thomas Moulding Brick Company, of Chicago, and is now handling the Straitsville Impervious face brick and Tiffany enamel. Display rooms are being fitted up in the Starks Building, quarters having been secured next to the rooms of the Engineers' & Architects' Club. L. M. Parsons, salesmanager, is in charge.

Kleymeyer & Klutey, a Henderson, Ky., concern, has been given an order by the United States government for furnishing the brick for six or seven houses to be built for the engineers in charge of the construction of Dam 48, on the Ohio River. The order calls for 80,000 fine face brick, and will keep the works busy for some time. The houses will be built at Dam Town and will cost $6,000 to $7,000 each.

Among work in this section to be started soon is sewer construction in Paducah, Ky. City Engineer L. A. Washington is now preparing plans for work which will cost $200,000.

The city of Louisville will shortly let contracts for considerable street work. In building alleys, brick will be used largely, it is stated.

The city of Knoxville, Tenn., is planning to build sewers to cost about $125,000.

SAN FRANCISCO, CAL.

By ALLEN PRESS.

Special Staff Correspondent.

CONTRACTORS and material dealers in all lines of the building trades are pretty well agreed that not only does the volume of present work show a considerable improvement in conditions, but that the outlook all along the Coast is for a decidedly better business this year than last. The official reports of building permits issued from the various cities for the months of February and March do not show up very well as compared with the same months last year, though in a number of cases a considerable increase as compared with January is to be noted. The poor showing made in the reports seems to be in large measure a reflection of the slack times which prevailed in December and January, in which months operations were largely suspended on account of the continuous rains. The present actual activity is expected to show up in the records in the next and the following report.

Gladding, McBean & Co., leading California manufacturers of brick and terra cotta, are preparing to open a branch office at a location just secured at Sacramento, Cal. The new location has excellent distributive facilities adjoining the Southern Pacific railroad yards. The company has one of the most extensive plants on the Coast at Lincoln, Cal., and a main office in San Francisco.

The Remillard Brick Company of San Jose, Cal., has sold out its old historic scow schooner Virginia, which has in its time carried many millions of bricks across and along the waters of San Franscisco Bay; and the old vessel has been dismasted and will be used as a barge hereafter. The company is to have a new power boat built for the transportation of brick.

It now looks as though vitrified paving brick was at last to come into its own as a paving material in this city after an up-hill fight of many years' standing. As a result of a disagreement between the property owners on Third Street and the draying and other companies using that street extensively, as to whether or not the new paving should be of basalt blocks as heretofore, or of asphalt, the San Francisco Board of Public Works has recommended that the street should be paved with brick. The property owners along the street objected to the basalt blocks because of the noise, and the draymen objected to the asphalt because of its slipperiness and consequent danger to horses. Neither side had any very serious objections to urge as to paving brick, and the Board decided to recommend that material to the Board of Supervisors. It is believed that the recommendation will be favorably acted on by the supervisors. If the plan goes through, this will be the first considerable amount of brick paving to be tried here, though two experimental blocks have already been laid.

The Pratt Building Material Company of this city has the contract for the hollow tile for the new addition to the Mills Building on Bush Street in this city. The same company is also supplying the pressed brick for the Jacobs Building in the wholesale district.

The Master Plasterers' Association of this city has come to an understanding with the plasterers' union, by which the latter are supposed to work only for members of the Master Plasterers' Association; and an effort is now being made to secure some such sort of a working agreement between the Masons' & Builders' Association and the union bricklayers.

T. J. Belfranci of Oroville, Cal., is experimenting with lava paving brick and sewer pipe, and may establish a plant for the manufacture of paving brick and sewer pipe from lava.

The municipality of Hanford, Cal., has sold for a premium of $800 its $8,000 bond issue for sewer purposes, and will proceed at once with its proposed sewer system.

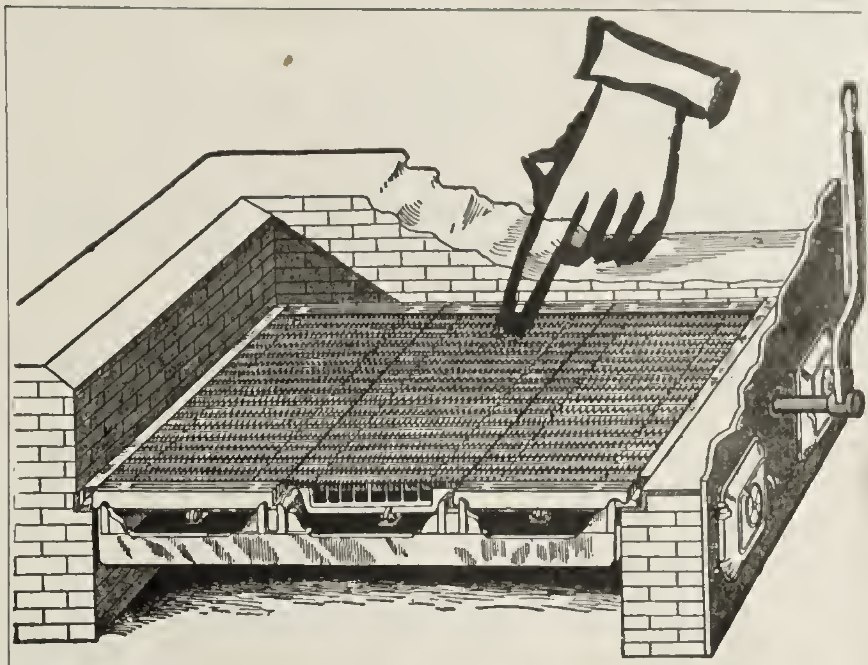
INDIANAPOLIS, IND.

BY H. R. JENNE.

Special Staff Correspondent.

BRICK and other clay products will share in the demand that will follow the especially big building and municipal street improvement work in Indianapolis, Terre Haute and South Bend, this Spring. While the tile men are not as enthusiastic as are the pressed brick and paving brick men, there is no reason to doubt that at least a part of the $3,000,000 which it is planned to spend in construction work, will come their way.

The tile men in Indianapolis are inclined to be pessimistic as



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

The Martin Grate Co.
347 S. Dearborn St., Chicago, Ill.

The
Gerlock Iron
Dumping Table

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H. W. GERLOCK
HUNTINGDON - PA.

Spring approaches, the inactivity of the Winter being a present and much felt factor, while the coming Spring is still in the future. Somehow or other, the tile business does not seem to be much on "imagination."

Paving brick manufacturers are more optimistic; they report good orders booked for Spring delivery and good prospects ahead, that promise a steady year's work. Terre Haute will spend half a million dollars on brick pavements, and Indianapolis plans to spend a like amount on a pumping station. This building will be faced with gray pressed brick and, in all probability, will be lined with enamels. In all, 35,000 ft. of pipe work will be installed, most or all of which will be in burned clay.

South Bend will build a 325 room hotel this year, and Indianapolis will put up a million dollar coliseum and hotel. These improvements mean much to the hollow-tile, terra-cotta and encaustic tile men, as well as to the brick manufacturers.

A deal has been completed whereby Cole Maitlen becomes the sole owner of the Redkey Tile, Brick and Building Block Company, of Redkey, Ind. For the past ten years the plant has been operated as a corporation, the other stockholders being J. S. Pierce and C. C. Mills.

The Lawhead Brick and Tile Works, of Loogootee, Ind., has decreased its common stock from $50,000 to $30,000 issuing $20,000 worth of preferred stock.

The Veedersburg Brick Company's plant, at Veedersburg, Ind., has been sold to the Adams interests at sheriff's sale. The sale was made to satisfy a judgment taken by John W. Martin and others and amounting to about $46,000. The plant went for $35,000 and costs.

The Hotchkiss-Riley-Hutchinson interests, which recently purchased the old Roeske Brothers brick plant, Michigan City, Ind., have incorporated under the name of the Ris-Clay Brick Company of Michigan City, with a capital stock of $60,000. W. B. Hutchinson is president, W. J. Riley of East Chicago is secretary and treasurer. Arthur Roeske is general manager. Mr. Roeske has been with the Ohlemacher Brick Company for the last year. He began his new duties March 15. Mr. Roeske says the new company will repair the old plant and operate it on its former lines this summer with about 50 employees, but that as soon as plans are perfected for the manufacture of electricity the plant will be considerably enlarged.

COLUMBUS, OHIO.

By J. W. LEHMAN.

Special Staff Correspondent.

The brick business in Columbus and central Ohio has been very quiet during the past fortnight, but this is no more than could be expected when the weather conditions are taken into consideration. The quietude has been slightly more pronounced than usual for the season, but with storm succeeding storm, there has not been much demand. The present condition is expected to be only temporary, however, and preparations are being made for a rather active season in every department of the business.

The indications are bright for active building not only in Columbus, but also in other cities and towns in the Buckeye State. Plans and specifications have been prepared for about $8,000,000 worth of new structures in Columbus alone and many millions more will be built in other places. The buildings will be largely business blocks, including office buildings and store rooms and large apartments.

Shipping of clay products has been hampered recently by the severe Winter weather which has delayed deliveries. Most of the railroads had congestion to contend with and the consequence was delayed freight shipments from a week to a month. But the railroads are now in better shape and deliveries are being made more promptly.

The four brick companies operating in the Shawnee district which have been idle since January 1 because of the failure to agree with their men on a wage scale have adjusted the difficulties and all of the plants were put in operation April 1. It was not a question of wages so much as the right of the employers to employ and discharge the men as they saw fit. The union objected to these provisions and after being out for three months finally came to the same point of view as that held by the employers. A scale for three years was signed and about 500 men who were out of employment at the four plants, have gone back to work. The four companies acted in conjunction in treating with the men.

Paving brick business is gaining in activity and all Ohio plants are operating with a full force. The indications are bright for a good demand as much paving of streets and highways is contemplated.

The Board of Administration of Ohio which has charge of the various penal institutions of the state is said to be negotiating for the purchase of paving brick plants some place in the Hocking Valley. In case the plants are bought they will be operated by means of convict labor and the product used to pave the highways of Ohio, which are being improved under the supervision of the state.

Common brick plants are running actively to get a stock for the Spring rush when it comes. Terra cotta plants are also busy and the same is true of many potteries.

Engineer Fairchild has completed the work of surveying the ground belonging to the Oxford Pottery Company, near Cambridge, Ohio, upon which will be erected a large plant. One of the buildings will be 120 by 240 feet. A portion of the contract has been awarded to A. W. Wilson.

E. B. Woods, as cashier of the Canal Winchester Bank, has asked for a receiver for the Canal Winchester Brick & Tile Company, alleging that the company is insolvent and that the bank holds an $8,000 mortgage against it.

The Sharon Clay Products Company has been awarded the contract for 500,000 paving blocks for the improvement of the streets of Youngstown, Ohio.

The directors of the Oxford Pottery Company of Cambridge, Ohio, have awarded the contract for the new plant to W. C. Hanshy & Son of Zanesville. The plant is to be completed by June 1.

Plans are under way for the reconstruction of the plant of the Trumbull Brick Company of Leavittburg, Ohio, into a fireproofing plant.

General R. B. Brown headed a delegation of paving brick manufacturers who appeared before State Highway Commissioner Marker last week to protest against changing the specifications for the improvement of the Old National Highway in Muskingum county from brick to cement construction. The change from brick to cement was necessary, it was claimed, to keep the cost of the improvement to $16,000 per mile.

Within a short time the state of Ohio will be manufacturing brick for the erection of public buildings. The State Board of Administration, which has charge of the management of all of the State institutions has taken over a brickmaking plant at Junction City, Perry County, Ohio. The plant has a capacity of 30,000 daily which will be doubled if the present plans are carried out.

"Prospects for the brick industry were never better than they are for the present year." This statement was made by P. B. Belden, secretary and general manager of the Belden Brick Company of Canton, Ohio. "This means, of course, there will be the average run of buildings plus a normal increase," said Belden. "Last year our four plants ran full time. We expect to do that and at times run extra shifts this year." The company held its annual meeting recently. The old board of directors were re-elected. Following are the officers of the concern: W. W. Irwin, president; H. S. Belden, vice-president; F. W. Hartung, treasurer and P. B. Belden, secretary and general manager.

Large extensions are being made to the plants of the Hocking Valley Brick Company of Columbus, Ohio, to enable the company to meet increased demands for its products. Contracts have been closed for approximately 4,000,000 brick, shipment of which is to be started April 15. The company is installing a large amount of new machinery at its plants and is building a new storage house.

The Hocking Valley Brick & Tile Company of Findlay, Ohio, has filed a complaint with the state utilities commission regarding the rates charged by the Toledo & Ohio Central railroad for the shipment of tile out of Findlay. They charge that the rate is unreasonably high and that they cannot compete with other manufacturers as long as the present prices are maintained.

The stockholders of the Junction City Sewer Pipe Company of Junction City, Ohio, held their annual meeting recently. The following board of directors was elected: A. Bringardner, D. T. McCann, Joe M. Clark, C. E. Turner and Z. D. Stier. They immediately organized by electing A. Bringardner president and William Bringardner general manager. The meeting was well attended and those present well pleased with the manager's report for the past year.

The past year has been the most prosperous one in the history of the Logan Pottery Company of Logan, Ohio. The new extension and additions to the buildings and the addition of the flower pot industry will make this concern better prepared to take care of the increasing business. Orders are now booked for a much larger volume of business than the plant has ever had at this season of the year. Seventy-five employees are busy full time.

The following directors were elected by the stockholders of the Metropolitan Paving Brick Company at the annual meeting recently: O. W. Renkert, C. W. Keplinger, H. S. Renkert, W. E. Keplinger, James G. Barbour and J. J. Renkert. The directors elected the following officers: President, C. W. Keplinger; vice-president, W. E. Keplinger; secretary, J. G. Barbour; general superintendent, O. W. Renkert; treasurer and general manager, H. S. Renkert.

PHILADELPHIA, PA.

BY E. J. BROWN.

Special Staff Correspondent.

OPERATIVE building work in the Quaker City has fallen flat during the blizzard weather and the far from pleasant conditions that followed, and every line of work in which clay products are used for constructional purposes stands idle. The new sewer contracts, upon which work had begun, are not going ahead and the trade in general feels very blue. Everyone predicts a good Spring, but adds "when it comes" and then begins to talk of how the seasons are changing and late Springs being the rule, rather than the exception. Fortunately, a few bright sunny days will be reflected in the minds of the present pessimists. One subject that holds out considerable hope for the brick men is the new sewer contracts, which, it is said, will use from 25,000,000 to 30,000,000 brick, as well as a vast quantity of burned clay segmental sewer pipe, and many tons of burned clay conduits for telephone, telegraph and other wires.

The Mack Brick Company reports business to be about normal, with one feature, which shows marked improvement—that is, paving brick. Recent lettings indicates a strong movement toward brick, and this is taking shape now, in the way of inquiries and actual orders.

Even at this early date, labor troubles are beginning to cast a cloud on the horizon, the particular trouble being, it is said,

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over a year ago. They fully expected to use an auxiliary furnace part of the time when they did not have a cooling kiln available. They have not had a time when they did not have ample heat to dry their tile, their saggers and their clay. And they are drying in 12 hours instead of 36 hours.

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All these questions are clearly discussed in Bulletin 202-S on Drying Clay products, which will be sent free on request.

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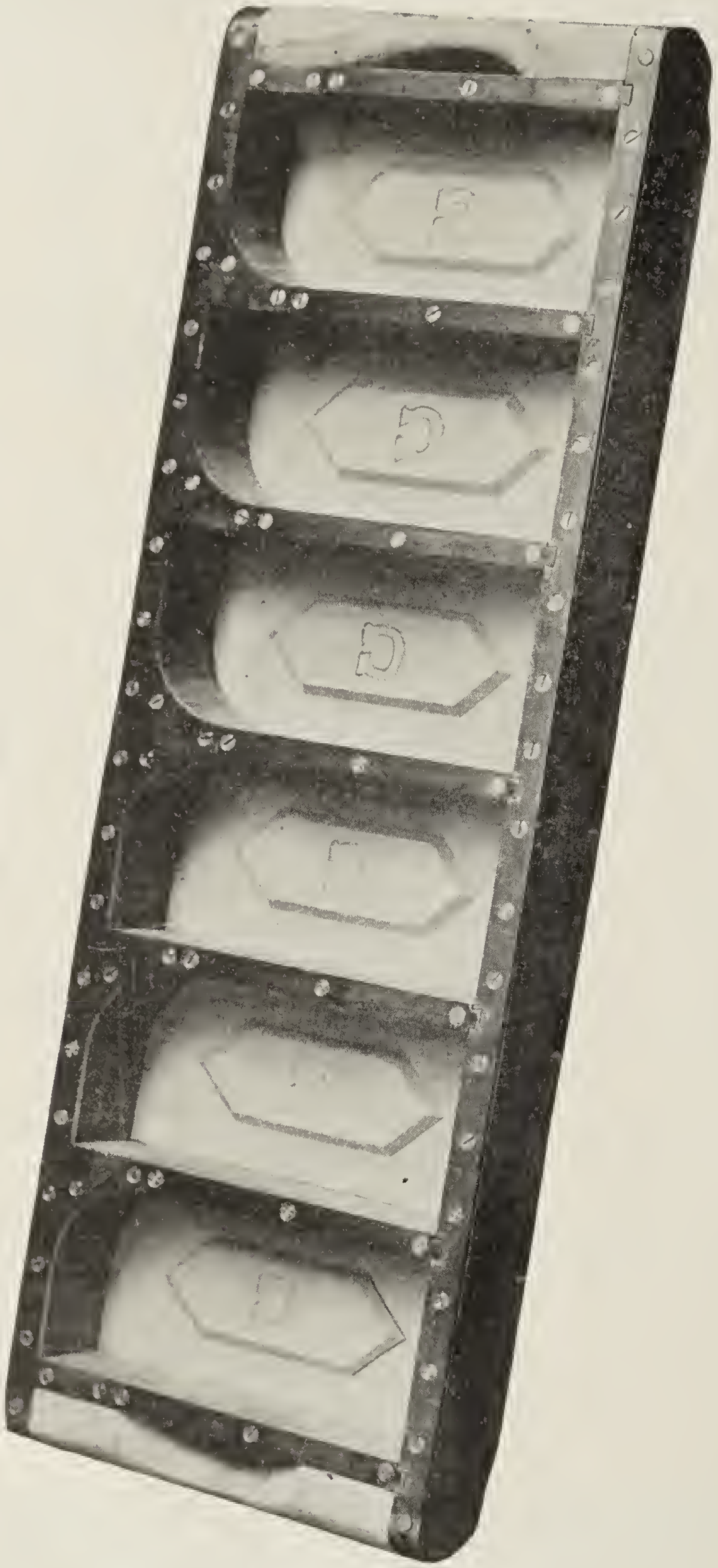

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the scarcity of labor that will prevail as soon as the Spring rush begins. With "great armies of unemployed" marching in New York and Chicago, it would appear as though some one ought to find a way of laying out a line of march that would lead the army near these plants, and so help the men to a congenial and lucrative employment.

The Pennsylvania Railroad has appropriated $300,000 for the purpose of building a six-duct underground burned clay conduit, in which it will lay twenty-five miles of signal wires along the right of way. Work will be started immediately on burying the wires between Rahway and Trenton as this section of the road was the worst damaged by the storms. The work will ultimately be carried from this section toward the two cities and it is said that this will be the first underground railroad wire system in the world.

The six-duct vitrified conduits will be encased with vitrified brick. Two of these ducts will be put in immediate use, one reserved as a spare duct, one as a signal duct and two will be reserved for future growth. This work will be under the supervision of W. G. Coughlin, engineer of maintenance of way and J. C. Johnson, superintendent of telegraph.

This is the most encouraging report in the trade so far received this season as it involves a large amount of material of an expensive kind, as well as a goodly amount of common brick.

Another good report is that the city of Philadelphia will start to build the new subway on Broad Street. If this work is started soon the brick manufacturers as well as all other clay product men will have all the work they can attend to for the coming season.

DETROIT, MICH.

By JACOB SMITH.

Special Staff Correspondent.

THE outlook for brick manufacturers and dealers alike, is rapidly improving, the early orders showing in quantity, and buyers having a tendency to be a little more liberal as to price. The latter is still a sore point, however, and no one seems to be able to say just why it is that Detroit is such a low-priced market, both for common and face-brick, but it is, and has been for many years. Hollow brick is also lower here than at practically any other large building centre in the country. Still, new plants are being built with the sole idea of supplying Detroit builders, so there must be money in it, even at the low prices obtained.

The construction of the new plant, which is to be built at Miller road, and Michigan Central R. R., by John A. Mercier and others, has been delayed by the weather, and will not be started, in all probability, until April 15.

Paving brick manufacturers will do well to look to Toledo, where 300,000 square yards of street paving will be done this Spring. Brick will be used for a part of this work only, asphalt and creosoted wood block being given a considerable proportion of the work.

City Engineer Wightman of Benton Harbor, Mich., has prepared an estimate for paving Broadway, in that city, with vitrified brick on a concrete foundation.

The United States Pipe Company is just finishing the first unit of its new factory in Bay City, Mich. Most of the machinery is in place and when in full force and operation, it will employ 25 men. The factory building is located at 1833 First Street, and the first unit is 40 by 90 feet in size. This plant was located for some years at Battle Creek, and was removed to Bay City on account of freight rates. W. V. Moore is general manager and J. H. Moore secretary. The company manufactures sewer pipe, segmental sewer block, etc.

Resolutions were passed by the City Council of Lansing, Mich., for brick pavement, 42 feet wide on South Washington Avenue from Barnes Avenue to Mt. Hope Avenue.

John L. Sullivan, city clerk, Wyandotte, Mich., has been receiving bids for brick paving as follows: Front Street, Vine Street, Poplar Street, Chester Street and Eureka Avenue. All upon concrete or cement foundations.

PITTSBURGH, PA.

BY M. K. ZIMERMAN.

Special Staff Correspondent.

ALTHOUGH it is admitted that general business conditions are not just what they ought to be at this time, manufacturers of building and face brick in the Tri-State territory, which includes western Pennsylvania, eastern Ohio and northern West Virginia, declare that the outlook for heavy Spring business was never brighter.

Quite a volume of face brick is being shipped from this market into Canada just now, and it does appear that building conditions there are just a bit better than those existing hereabouts.

There are a number of large buildings on the boards of the architects in this district, and it looks as though there will be a liberal amount of new construction done in the immediate Pittsburgh district this season. It is pointed out that labor conditions are just about right for such a construction program.

The wage scale, on account of so many men being out of employment, has a downward tendency, and when this is the case, builders are always sure to jump into the game and start new and extensive work. The present is just such a season. Inquiries for face-brick are considered favorable, and the sales agents hereabouts are having a rather busy time just now showing the good points of the different panels.

From expressions obtained from the agencies, there is no attempt evidenced now to get under the market, the manufacturers holding firm "to that which is good." In fact, it has been pointed out that there has been no change in the market price of brick products in this section for some months.

Light shades seem to be in greater demand, although calls are had now and again for the darker shades. "Tapestry" and other rough surfaced brick have some call, while the more extreme varieties of texture are not moving so fast.

In the building terra-cotta lines, the market is declared by some agents to be open, and that there is unmistakable evidence that some manufacturers have gone away below the market in order to land some big jobs. It has been pointed out that these manufacturers desired to keep their working organization together, and that business was taken at almost any price—just so long as the order was secured.

There is no lack of business with the paving brick and paving block manufacturers. All report good orders now on file, and a most liberal inquiry. There is no denying the fact that the brick-paved road is the coming road, and 1914 will witness more paved road construction than in any other year. All plants in the Tri-State district report an active market, and prices are being maintained in a most satisfactory manner. That the eastern paving brick manufacturers are standing as a unit, there is no question. The Standard Contractors Agreement is admitted by both manufacturers and contractors to be a good thing, and there is reason for believing that sooner or later a similar contract form will be in use throughout the entire country, in so far as paving brick or blocks are concerned.

Sewer pipe will also soon be in good demand, but it will require open weather to bring both the paving brick and sewer pipe industry up to normal. In both instances, stocks are being made, but all now on the different yards will be speedily cleaned out as soon as the buyers are in a position to accept shipments. Sewer pipe prices remain as formerly announced, and the market is considered by dealers as being firm.

From all indications building operations are going to establish a new high record, in point of cost, in Pittsburgh this year. Already there are nearly Ten Million Dollars' worth of buildings definitely arranged for, not exactly definitely decided on for erection this year, but with every probability of their being undertaken ere 1915 dawns. The new City and County building, the Rosenbaum store building, the Central District Telephone building, the William Penn hotel, the East End high school and ten district schools, costing around $250,000 each, are some of the structures that are going to swell the city's building records abnormally. From month to month other costly structures of various characters will be decided upon, and builders are beginning to predict an active movement in house and flat construction.

Plans for the new $600,000 Schenley high school building have been completed by local architects. This building will contain 158 rooms, and a portion of it will be three stories high, and another part will be four stories high. All of these improvements, which will be started this Spring, mean an enormous sale here of brick and other clay products. While some of the biggest jobs now on the boards have been noted, there is any amount of smaller buildings ready to be started, just as soon as the weather opens. Brick manufacturers believe that the season promises much, so far as business is concerned, and that all indications point to the operation of all plants in the Pittsburgh district to capacity throughout the year.

Brickmaking has kept close pace with the progress that has been made in every branch of the construction arts. Foundation work has been revolutionized and the steel cage system has changed all forms of larger structures, while various forms of fireproofing have made a vast change in the interior construction of the small house. In the latter, the newer forms of construction have brought some changes in outline, but, as in the past, very little latitude is given the designer of domestic architecture. The average client, while wanting a certain individuality in his new home, discourages any radical departure from conventional lines, fearing a "freakish" effect.

Here, the development of color and surface in face-brick has been a blessing to the architect, who can make each of his creations different from those that have gone before, by using a different color combination or a new harmony in surface and mortar joint. In this way, the individuality of the client is interpreted by the architect without any danger of going so far away from fairly familiar outlines as to raise any doubt of his sanity in the mind of the passer-by.

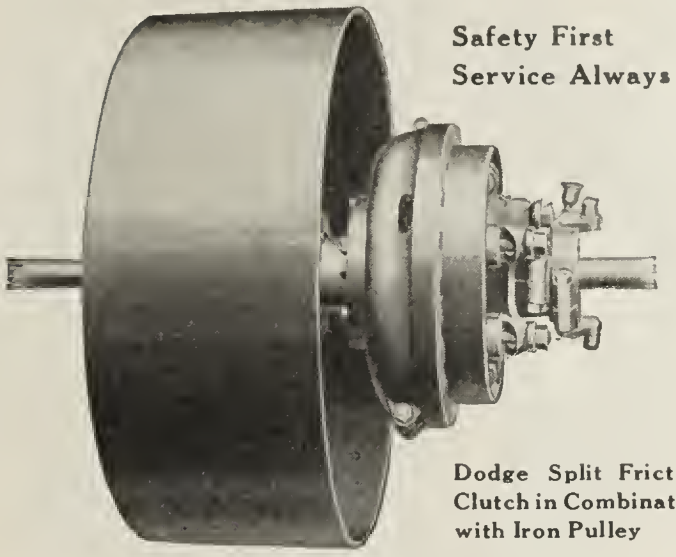
The "renaissance of brick" as it is called, is still in progress. No one believes that it has, as yet, reached its zenith. Coming, as it has, during the past ten or twelve years, it is still in early youth, and, seemingly, gaining with the years.

It is curious to note, and worthy of comment, that the new ideas in brickmaking and bricklaying came at about the same time that cement stucco began to obtain a hold on the mind of the building public. It is fair to assume that the "stucco craze" would have been longer-lived had it not been for the rapidity with which brickmakers took up the newer thought in texture and mingled shades, and the welcome with which the thought was received by the best designers in the country.

Pittsburgh builders have availed themselves of the new uses for brick that now offer themselves, in the way of interior work, not only for enamel brick and tile, but for the rough surfaced face-brick, that can be woven into intricate patterns with harmonizing joints, so that many interior walls that, in the past, would have been plastered and stenciled, are now permanently decorated at the time they are built in.

All about the city can be seen divers results of the use of face-brick, used in combination with common brick, and which has made many a blank wall pleasing, that otherwise would have fallen like a pall on the vision of occupants of neighboring buildings. The bettered appearance of a structure so treated, while perhaps a little more costly, many builders and owners have found to mean a distinct gain in the value of the property and in its desirability as an investment. This being so, the pity of it is that there are many buildings overtopping lowly neighbors, which have ugly side walls that de-

DODGE



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There are no complicated features involved. Anyone who knows anything about machinery can install and put them into service.

Power costs money. For the elimination of unnecessary expense in this connection there is no device in more general or more successful use than the friction clutch. Please look over your shafting equipment. There is quite possibly a place where you could use one to advantage.

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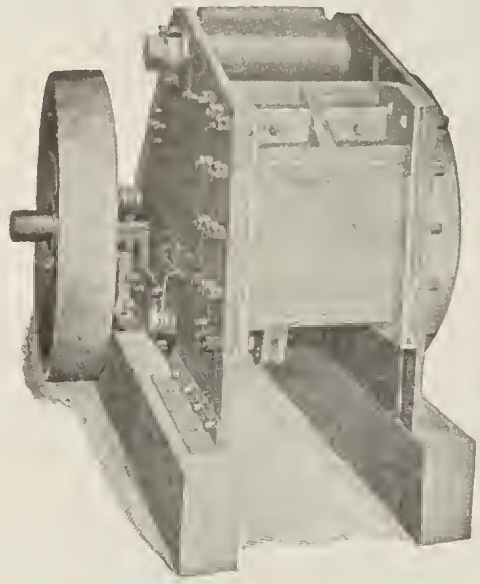

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In this age of competition the progressive manufacturer of brick or clay products will equip his plant with every possible device for saving labor and money.

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tract greatly from the general appearance of the building, the very "ornateness" of the facade accenting the depressing effect of the unpanelled wall.

BIRMINGHAM, ALA.

BY E. L. PATTON.

Special Staff Correspondent.

THE United Timber & Koalin Assn., Ltd., a company with a capital stock of $2,000,000, will erect a kaolin mill with an initial grinding capacity of 200 tons of kaolin, daily. This will be erected in addition to a fire-brick plant, a box factory and a saw mill, at the new town of Camp Wood Creek to be established at the headwaters of Camp Wood Creek, 55 miles north of Uvalde. The company owns 700 acres of land, containing deposits of kaolin and 30,000 acres of fine mountain cedar. The Uvalde & Northern Railway Company has been organized with a capital stock of $60,000 to build a railroad from Uvalde to Camp Wood Creek to furnish transportation for the various products at that place. All of these enterprises, including the railroad, will be under the control of a board of trustees composed of L. J. Smith, H. P. Wright and E. H. McVey of Kansas City; Morton Wellman of New York; William Cassin, Will A. Morriss and Fred C. Adams of San Antonio.

R. L. Dennison of Dayton, Ohio, is organizing a company, to be composed principally of Dayton capitalists, to erect a large brick and tile manufacturing plant at Port Arthur. The company will have a capital stock of about $300,000, the greater part of which has already been subscribed, according to Mr. Dennison. Tests made of the clay samples obtained here have proven entirely satisfactory. The promoters have been attempting to obtain from the government a grant on a five-acre tract of land located between the canal and Lake Sabine. It is planned to ship the clay products to Beaumont, Houston and Galveston by water.

The city of Temple, Tex., has perfected arrangements for taking over the property of the Temple Sanitary Sewer Company, recently purchased by the city, and will begin work at once in extending the sewage system.

The Comanche Brick Company is installing machinery for its brick plant at Comanche. A spur has been built from the railroad to the factory site, and nine cars of machinery are being unloaded. The plant will manufacture a sand-lime brick.

The Texas Fire Brick Company has reopened its plant near Elgin, after effecting a reorganization of the company. The plant has been improved. Louis Reiman is manager.

The Houston & Texas Central will pave three blocks in the city of Austin with vitrified brick, by agreement with the city.

A company of local capitalists have purchased the Brownwood brick factory from J. D. Day, and will greatly enlarge the capacity of the plant, which now turns out 20,000 brick daily. Hal Hardeman has been made manager of the plant.

The plant of the Vinton Brick and Tile Factory at Vinton has been enlarged and remodeled.

REDCLIFF, ALTA.

BY C. S. RICE.

Special Staff Correspondent.

TWO-THIRDS of Redcliff's clay products industries have been operating on full time during the Winter, one with a full crew of 40 men, on eight hours' time, and one with a force of 100 men. All the plants here will be operating to full capacity by April 15. Redcliff is the main source of supply for the Canadian West, and is the only point in Canada where the raw material and cheap gas are both available in the immediate vicinity of the works.

The Redcliff Clay Products Co. has been shut down during the Winter months, but will resume with a full crew of 75 men on April 15. Running night and day at full capacity most of last year, a stock has been accumulated sufficient to carry through the early Spring. Only pressed brick is made and the output is 25,000 per day. The shale is mined at the plant and the works, being all under cover, the work can be carried on through the whole year.

The Redcliff Pressed Brick Company has been working a full force of 40 men during the Winter on an eight-hour shift, which will be increased to ten hours this week.

The Redcliff Brick & Coal Company has been working a force of 100 men all Winter, which will be increased to 175 this week. Pressed brick has been made through the Winter, but in the larger operations to be resumed, all the various kinds will be made. Manager Melhorn has been experimenting with fire brick and pavers, with excellent prospects for success.

TEXAS.

BY W. D. HORNADAY.

Special Staff Correspondent.

THE issuing of the building permits in Birmingham for building of brick construction was not quite so marked during March as it was during the latter part of December and in January and February. But the sale of realty has been very active in sections of the city where improvements are being made, and the building of brick structures has been the rule. Such being the case it is expected that when the large improvements that are sure to follow are made, brick will be used freely. At the recent Regional Bank hearing held at

Atlanta, Ga., by Secretary McAdoo, the fact was brought out that Birmingham had used, during 1914, more than fifty million brick.

The Birmingham City Commission is making extensive additions to the storm and sanitary sewers system and is using a large quantity of brick in this work.

The Jenkins Brick Company, of Montgomery, Ala., has begun the manufacture of farm drain-tile, shipping into Mississippi and Louisiana, as well as Alabama.

A. C. Davis, president of the Montgomery Lime and Cement Company, was elected vice-president of the National Builders' Supply Association.

MINNEAPOLIS & ST. PAUL.

BY C. F. IRELAND.

Special Staff Correspondent.

WITH a building record in prospect exceeding any former years in the Twin Cities, the common brick stock available for shipment reduced to practically 3,000,000, a situation presents itself, which has never occurred before in the history of the clay products trade in the Northwest. The largest plant is entirely sold out and even the sand-lime stocks are sold ahead several million brick on the new crop. Ordinarily at this time of the year there would be a stock of from 10,000,000 to 12,000,000 common brick available for the Minneapolis and St. Paul market. Inquiries are coming in hourly for common brick to the various local yards, and nearly all are told of the small stocks. If the dealers and makers do not profit by the present state of affairs they will have no one but themselves to blame, and a chance seems offered to bring prices back to a more reasonable basis.

The open price policy was discussed quite freely during the convention of the Northwestern Clay Association, and tentatively the membership endorsed the policy. As yet, however, there appears to have been no move made to follow the matter up, or put it in practice. Some little indication is shown to firm up prices, but it is the result entirely of the shortage of stocks and in no way may it be said to be the result of the convention.

Several large purchasers are looking for common brick. Jobbers are getting busy and seem to be worried as to where they will be able to get stock to fill contracts entered into. Some idea may be gained of the construction work already started and to be done in St. Paul and Minneapolis by taking a glance at the situation. In St. Paul, one of the principal streets is being widened twenty feet. Work has already started. The widening process will cover a distance of six blocks and one-half of it will be done this season. The Merchants National Bank, northwest corner of Robert and Fourth Streets, fireproof, 16 stories, the railroad office building on Jackson Street, which will house the Great Northern and Northern Pacific roads, will be the largest railroad office building in the country. The public library building, on West Fourth Street, and other smaller buildings, among which are the Emporium Store, the Golden Rule, a new building to house the department store of Mannheimer Brothers to be built at the northeast corner of Sixth and St. Peter Streets, to say nothing of other still smaller buildings in the business district. In the residence districts the building, according to reports received from contractors, will be as heavy as in the business districts. A preponderance of the residence building will still be of wood and shingles, as usual.

In Minneapolis the nineteen story First National-Soo Line office building will be the largest job, while the new fourteen story Athletic Club and a score of other large buildings will be built. The three new electric lines which will run west, south and north from the city will be housed in a building to cost $1,000,000 at Second Avenue north and Seventh Street. Minneapolis in the residence line will build more in the suburbs than ever before in the history of the city. The new interurban lines are responsible for this move. In the business buildings now under construction in Minneapolis there is the Ford Motor Car Company building, Fourth Avenue north and Fifth Street, two million brick; new theater, Hennepin Avenue and Fourth Street, two million; Loeb Arcade, Hennepin and Fifth. Hennepin Avenue Methodist Episcopal church now under construction, takes two million common brick.

The face-brick situation in the Northwest is like the common brick in but one respect, that of demoralized prices. Available stocks are plentiful and the demand will be easy to meet, even though the ordinary channels should be exhausted. Here, again, some move is necessary to maintain prices, which have been going from bad to worse for some time.

The tile situation seems to be in a more healthy condition than is the brick condition. Most of the tile made in Minnesota and the Dakotas is swallowed up by local demand, most of the plants not making enough to supply the immediate surrounding territory. Freight rates and the light weight permit the possibility of shipping longer distances but there seems no disposition to increase the output or lengthen the shipments distances.

Drain tile meets with ready sale and what little is made in the Northwest is easily disposed of. There is an increasing demand for drain tile in northern Minnesota and the local manufacturing field presents a good outlook for added output.

This leaves the way open for capital to interest itself in the drain tile making in the Northwest. The northern third of the state of Minnesota presents great possibilities as a market for drain tile, and the people have money to pay for it. Diversified farming is doing wonders for Minnesota, and in fact the entire Northwest, and the farmers are getting rich. They are buying automobiles and in various ways are showing the fact that they want the best of everything. Immigration is setting in heavy this Spring to the state of Minnesota and

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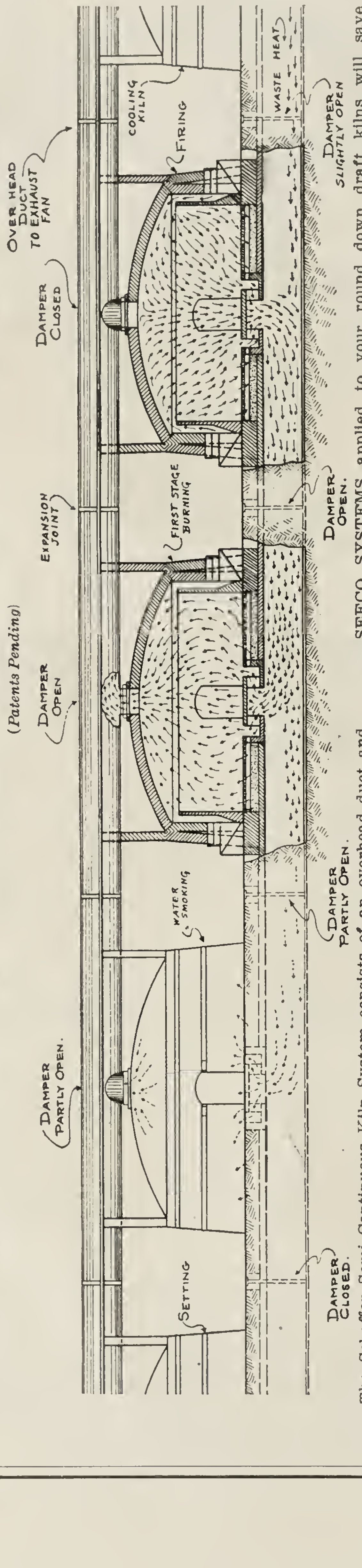

The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

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This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

carload after carload of immigrants are passing through the train sheds in St. Paul and Minneapolis. Many interior towns report a shortage of houses, and in this field, capital will find a ready return. In many of the interior towns "speculative building"—that is, building to sell improved property to investors, has never been attempted. Some of the builders who cannot make ends meet in the cities can make fortunes in these smaller places.

PRIZE PROBLEMS

(*Continued from page 823.*)

line. Usually the motor base slips slightly, causing the gears to mesh unevenly, resulting in the end with a stripped gear. Should a tooth be broken out on the gear worm, it is not an unusual occurrence for the entire motor to be thrown out of commission before the operator can shut off the power.

Should you overload your motor and the oil switch fail to work, the result is likely to be a burned-out motor.

Now let us consider the belt drive.

In the first place, a belt has enough elasticity to absorb all the sudden shocks and strains from the machinery which it is driving. The motor is not subjected to any undue shocks and therefore there is no chance for an injured shaft or a worn bearing from this source.

A single daily application of dressing on a belt is all the attention it requires. It runs smoothly—without noise. Should your motor become overloaded, the belt will either slip on the pulley or break—thereby acting as a safety to your motor. Of course, in all cases the operator must keep a vigilant watch on the motor bearings, keeping them well oiled (the oil should be changed once a month) and the bearings true and snug.

There is every reason to conclude, from both experience and theory, that the average life of a motor with belt drive is twice that of direct drive gear, and the up-keep and repair bill no more than half.

This answer to Problem No. 6, was submitted by a correspondent who signs his manuscript with a pen-name—"Direct:"

Although there are cases which tend to favor either side of the transmission question, there is no doubt but what direct transmission, from the general standpoint, is the best.

One of the most evident arguments and one which is growing in importance comes from the economy in space, made possible by direct transmission. Each machine and its source of power may be placed in the smallest possible space and offers quite a contrast to the extensive systems of belting. Even if only one motor were to be used the argument is worthy of attention, but when "motors" are to be used, as in this case, it increases in force many fold. In fact, not only economy in space results here, but also increased cleanliness and protection for workmen.

Another very important argument comes from the possibilities of portability, in the smaller machines, arising from direct transmission. Some time ago I found it necessary to construct an arrangement for forcing the hot air from the cooling chambers of a continuous kiln. By using direct transmission it was possible to carry this from chamber to chamber, the only additional operation being to change the connection. Can you conceive a simple arrangement involving belt transmisison that would be adaptable to this case?

A third and stronger argument for direct transmission is, that by using it no lost motion is possible. The amount of this present with belt transmission is known to everybody in the manufacturing business, so the argument is self-evident. The loss of power from friction increases infinitely as it is transmitted through series of belts and shafts, yet this is the only possible practical means of utilizing the belt system.

By means of using one motor to run several machines a saving in initial cost is possible. However, this saving, to be taken as final, is the foundation of a great error, since the increased operating expense more than offsets the initial advantage after a very short time. This is due to the great amount of power which is lost in shafts and belts and in running machines not in operation.

At this point another less weighty argument might be inserted. In case one division of a series of machinery operated by belt transmission becomes disabled, it is often necessary to stop the entire series or even the whole plant. In the case of direct transmission only the one machine would be disabled and proportionate loss would follow.

Thus after this brief statement of a few of the arguments for direct transmission, it hardly seems possible that the progressive manufacturer could be induced to use the antiquated belt system.

A "clay technologist" who signs E. H. B. sends us the following solution:

I would connect the motor direct, for this reason—each and every machine would be self starting, or, in other words, the power would be more easily controlled. It is true, nevertheless, that the belt drive would be cheaper to first install, but in the long run, I would overcome a lot of worry and trouble, to say nothing of the loss of power, by friction of the shafts in the journal boxes. And further, I don't know, without figuring the cost of belting, shafting, journals, etc., but that the direct drive is best in every respect.

IN THIS NUMBER: THE CLAYWORKERS' OPPORTUNITY AT THE PANAMA-PACIFIC EXPOSITION

BRICK and CLAY RECORD

ARTHUR D. ROGERS
PUBLISHER OF THE BRICKBUILDER

Classified Ads Pages 993-994

CHICAGO, APRIL 21, 1914

The Buyer's Directory Pages 980-[illegible]

Table of Contents Page [illegible]

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"Sirocco"

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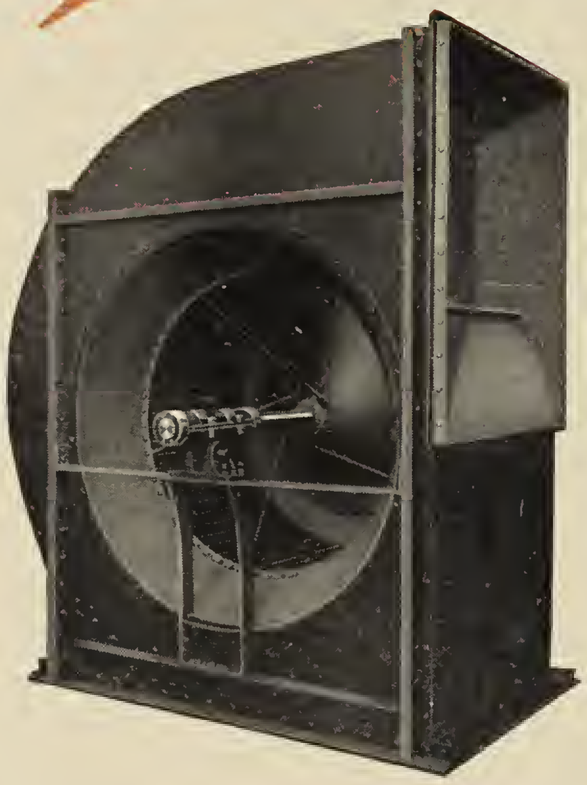

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BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

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The Editor's Corner

A Department Wherein is Set Apart Comment
and Opinions on Some of the Graver Problems
Confronting the Clayworker and Co-Laborers

WHAT is the Open Price Standard? How is it applied to the clayworker and what is the promised benefit? These questions and several others along similar lines have been directed at this magazine.

The interest in the subject has been brought about by the general movement throughout the country among clayworkers to adopt some sort of policy that will correct the many evils besetting the industry, and, usually, the Open Price is being looked upon as a panacea.

The Open Price Policy means just what it says—a price that is open to all—business methods that are non-secretive—competition that is fair and honest.

You cannot have a secret price—that is, one to one customer and another to another.

You cannot be unfair to a competitor.

The name, Open Price Policy, is a misnomer, however, in that it does not convey the full definition of the system.

The Open Price Policy does not concern itself merely with prices.

It really covers all the methods employed in selling.

However, because all selling methods hinge on prices, one is prone to refer to any marketing system as a price system.

As a matter of fact the question of prices is not the first thing considered in any organization that employs the Open Price Policy.

HONESTY is the basic principle.

With a group of men fully determined to play a square game—who have concluded that underhanded methods are unprofitable methods, the price feature takes care of itself automatically.

Briefly and concisely stated here is the way an Open Price Policy Association among clayworkers operates:

A group of manufacturers meet.

They are disgusted with the unfair methods in practice.

Each believes the other to have been the offending person.

They all agree that no one is exactly right and each is willing to bury the hatchet and do anything that will better conditions, because nothing can be worse, and anything will be better.

An organization is perfected—the simpler in form the better.

Usually only a chairman, a treasurer and a secretary complete this organization, unless there is a large membership.

With a single exception all the officials are elected by the members, and from among the members. The exception is the secretary.

This position is the pivotal point in the success or failure of the organization.

The secretary first of all must NOT be interested in any way in the industry, except as his secretaryship demands.

Each member files with the secretary, on blanks supplied for that purpose:

A report showing his local conditions—his capacity—his stock on hand, the line of products he manufactures, shipping facilities and, in fact, everything that will tend to show the secretary the exact existing situation.

With this report also is sent another one. This one shows the stock on hand at the end of the week—the number of inquiries for his product—the number of sales made and the prices quoted in each and every case.

This report is made every week to the secretary and is filed away for reference.

From these weekly reports the secretary compiles a weekly BULLETIN which goes to each member.

This bulletin summarizes the reports sent into him, the secretary's office being in the nature of a clearing house for the dissemination of information.

With a copy of this weekly bulletin you are made acquainted with these facts:

How much product was manufactured during the week passed.

How much was sold and, therefore, how much stock is left on the yards.

What PRICES the product brought.

And what prices were quoted on prospective sales.

You are then in a fair condition to arrange your selling conditions for the COMING week, because you know what the demand is and you know what price conditions prevailed and how much stock there is on hand to meet the demand for the approaching week.

You govern yourself accordingly.

So much for that angle.

Now, suppose that there was a good job of brick in sight, and that two of your competitors were after the same job.

You make YOUR price quotations to the customer and at the SAME time send a carbon copy to the secretary of your association.

Your two competitors do the same thing.

The secretary immediately notifies YOU that your two competitors are after the same job and tells you the prices they HAVE quoted.

This action places each of you three on an EQUAL footing.

You, or your two competitors may change the prices that have been quoted, but it is understood that the secretary is to be advised of the changed prices, as soon as they are made. And he, in turn, notifies all three of the changed prices.

Now, suppose, that a contractor comes to you and asks a price quotation. You give it to him. Then, as many contractors do, he says to you:

"Smith, I like you and I would prefer to give you this job, but business is business and Brown has quoted me a much lower price and I'll have to give him the order."

As he is trying to USE you against your competitor, he winds up by telling you what Brown is supposed to have quoted.

You, of course, under the old system, have had no means of telling whether Brown is lying to you or whether it is the contractor, but having been suspicious of Brown for some time, you decide to cast your lot with the contractor and you cut the price which you had determined should be your legitimate price.

Under the Open Price Standard, however, your contractor friend would find it impossible to play your competitor against you with a false statement of facts.

When he tells you of Brown's alleged quotation you simply refer to your secretary's report and ascertain the TRUTH.

Here is another point:

Suppose you have quoted on a job. You have, through private sources of information, as you believe, obtained a line on this particular job that no one else has.

You have every reason to believe that you are the only living man that knows of the contemplated sale.

Naturally, you ask yourself: "Why should I tip off my competitors? If I send this price quotation to the secretary, he will quote it to the other members and then all my early information is useless, since I will have to enter into competition."

To begin with, are you afraid of competition, in this case?

But, whether you are or are not, the Open Price Policy is going to protect you for whatever is yours exclusively shall be yours.

When you send your quotation into the secretary he looks over his lists and he finds that NO ONE ELSE is quoting on the job but you and, as the system provides only for a like interchange of information, that quotation remains in the files untouched until, at some later time, some one else begins to bid on the same job.

In other words you are forced to give to no one any information that you do not receive back from your competitors in the same measure.

No one else having quoted on the job no one else receives your quotation.

But suppose, despite your conviction, someone has got a line on the job. Suppose that despite all the clever methods you have employed to cover up your salesman's trail, one of your competitors stumbles onto the same facts as you and quotes a price?

Should he not be given a chance at that job as well as you?

If you were in his shoes would you not expect to get the chance?

Manifestly, yes.

And, under the Open Price Policy you would and so will your competitor.

For instance, when you send in your quotation, the secretary looks over his list of quotations and he discovers that a second quotation has been made. Immediately your quotation is transmitted to your competitor and his to you.

That is as far as the quotations go, unless—

A third competitor runs across the supposed private contract and sends in the price he has quoted.

This may happen several days later or even within a few hours of the letting of the job.

Immediately the information is sent you and the other bidding member and you may act accordingly, bearing in mind always that should you change your price for any reason that you are to let your bidding competitors know it.

Let us suppose still another case: There are four members bidding on a job. No one else has entered the field. Finally, you obtain the order.

Immediately you notify the secretary of your association that the order has been given and he, in turn, notifies your competitors. That stops further competition.

Briefly stated these are the important factors in the Open Price Policy, so far as the prices are concerned.

There are other factors—many of them, and each one is just as sensible and just as meritorious as these.

Subscribe for the Brickbuilder

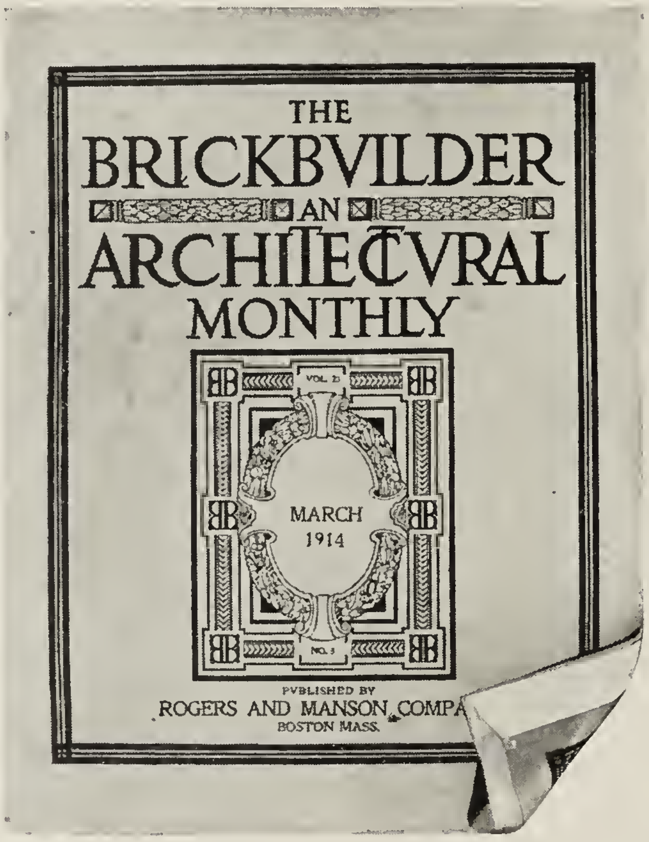
ON THE PAGE following, C. H. Blackall, F. A. I. A., has written an appreciation of Arthur D. Rogers, one of the best known and best beloved men in the world of brick.

He says, and truly, that "The Brickbuilder" is Mr. Rogers, and, by inference, that Mr. Rogers is "The Brickbuilder."

A host of homilies could be written upon that phrase, for in building "The Brickbuilder" Mr. Rogers has built an understanding and an appreciation of brick that has, as Mr. Blackall says, "Done more * * * to create a wholesome and vital clay architecture in America than all other forces combined."

Since its inception "The Brickbuilder" has wielded an immense influence for a more intelligent use of brick.

It has consistently advocated brick as the logical material with which to create an architecture that bespoke a young, honest, virile nation, which was building for a posterity unlike the people of any country that had gone before it.



It has searched the highways and byways of the Old World for examples of craftsmanship that have guided the creative hands of New World workmen. It has found, exemplified and praised the work that was found worthy in this, the world's fairest country.

For the material good that "The Brickbuilder" has done the brickmakers of America, an obligation exists in every town and hamlet where a brick kiln burns.

The only way that the obligation can be acknowledged is by the slight appreciation brickmakers can give Mr. Rogers' beautiful paper, by subscribing for it—reading and studying it—and so following the high standard that Mr. Rogers has put upon the work in which they are engaged.

Subscribe for "The Brickbuilder."

The subscription price, $5.00 a year, will be brought back in the inspiration—the better opinion of your field of endeavor—that a study of its pages will bring to you.

Brick's Greatest Creditor

Being All Too Short an Appreciation of a Man Who Has Done More to Bring About a Wholesale and Vital Clay Architecture in America Than all Other Forces Combined

Arthur D. Rogers*

Editor and Publisher of "The Brickbuilder"

A Sketch—By C. H. Blackall, F. A. I. A.

SELDOM can an architect judge of his own work—he is too near it—too much interested personally to rightly measure it or its influence, and, paradoxical as it may seem, one of the best judges we have of architecture in this country is a man who came to the profession as an outsider and whose early business career was in an entirely different line. This is Arthur D. Rogers, who has to his credit that he took "The Brickbuilder" without previous training, managed it purely as a business concern, but has been able to rise to every development, to keep sufficiently ahead of the march of progress without losing touch with the growth, and to make himself and his journal a power in the profession and a reflection of all that is truest in architecture.

There are some points that are particularly manifest in Mr. Rogers' career. All of us make mistakes, but if he has made them in his editorial utterances, they have been negative rather than positive and the ability to know when not to say the wrong word is quite as manifest in the files of "The Brickbuilder" as his rare capacity for seeking out the best architecture and presenting it in the truest light.

Many of our architectural papers have become simply purveyors of illustrations. "The Brickbuilder" is more than this. Mr. Rogers' editorial utterances are always pertinent, always have direct application to the best sides of architecture, are never extreme or neglectful, and it is probable that his utterances are read more than those of any other architectural writer in the world.

Mr. Rogers has appealed, it is true, primarily to a special class. Most architects do not read if they can help it and I am sure I am only one of many who feel we could skip some of the special articles, but we cannot afford to pass unnoticed any of the editorial utterances of "The Brickbuilder,"—and "The Brickbuilder" is Mr. Rogers. Wise as he has been in calling to his aid helpers and advisers, it is his policy which has always guided the paper; it is his choice which has made the illustratons of such high rank and it is his discriminating taste that has gathered together the themes most vital to the profession and called forth reasonable, profitable discussions thereof by the brightest minds in the country.

The debt which the country owes to Mr. Rogers is something which can never be forgotten. An acquaintance with him and with the journal, dating from the very first number, warrants the statement that not once has he editorially made a statement which called for contradiction, nor taken a position which was not justified by architectural facts. Not once has he presented bad architecture as good architecture, or let down even in the slightest degree the high ideals which we like to assume for our profession at its best, and, although Mr. Rogers was in commercial life first and has made a business success of "The Brickbuilder," his attitude always and consistently has been that of a professional man and his ideals have been of the very highest and, better yet, he has carried out every one of them.

I feel safe in saying that the great majority of the members of my profession regard him as the leading architectural publisher of this country and accord to him the credit of having done more through "The Brickbuilder" to create a wholesome and vital burnt clay architecture in America than all other forces combined.

**Portrait on Cover*

Elbert Hubbard on the Trade Paper

"ITS GREATEST ACHIEVEMENT," SAYS THE SAGE OF EAST AURORA, "IS THE CREATION OF A BOND OF SYMPATHY, MUTUALITY AND UNDERSTANDING BETWEEN ITS SUBSCRIBERS AND ADVERTISERS."

FRA ELBERTUS congratulates the Trade Paper upon its Truthfulness, while adding that its peculiar intimacy with its subscribers makes sensationalism and false-coloring suicidal. And he draws the conclusion that Trade Paper readers are prepared to look with confidence at what the advertisers have to say, because the reading columns have never led them astray.

IT IS a somewhat curious fact that in many daily newspapers a wide gulf exists between the reader and the advertiser.

The newspaper may advertise clairvoyants, fortune tellers, palmists, astrologers, fake remedies, and fraudulent financial schemes, and the subscriber does not wink an eyebrow.

But let a Trade Paper advertise a machine of problematic value, and the editor would have the subscribers right on his back.

It is assumed by the readers of a Trade Paper, that the editor knows every advertiser and is familiar with his products. If not, he should be, and, as a matter of fact, he is.

And this confidence of the subscriber has a deal to do with holding the editor to his task.

A great many magazines publish anything that "listens good," and the publisher hopes it is all right. If it isn't all right, he doesn't want to know about it, and isn't thankful when he is told.

With the Trade Paper, the editor cannot countenance "explosives" in his ads. If he does he loses subscribers, and if he hasn't subscribers he cannot expect advertisements.

And without advertisements he cannot produce the best paper.

For advertisements not only bring the money that buys gasoline, but the subscriber prizes the Trade Paper on account of the fact that it advertises the machinery, and the goods he needs, and also tells the truth about them.

It will thus be seen that editor, advertiser, and subscriber, occupy a close triangular family relation.

Their interests are mutual. If the Trade Paper did not help the subscriber up the incline plane towards success, it would not and could not exist.

"Each for all, and all for each" is fast becoming the universal slogan. "From every man according to his ability, to every man according to his need," is the new evangel.

There is no such thing as distinct interests, apart from each other.

The manufacturer needs the miner, the miner the manufacturer; they both need the farmer, and we need them all.

One may be a hewer of wood or a drawer of water, another a captain of an industry. One may be a toiler in the valley, and still another in the observatory on the mountain top, reading the signs of the times. But their success hangs upon their co-operation—their reciprocity—their interrelation.

True progress is only possible where there is mutuality and co-operation—where we see the seeming paradox of individual liberty harnessed to the car of common weal.

The principle of alternating motion is as applicable to the life of the individual as it is to mechanics.

We grow by giving. Power comes from knowledge. Knowledge is absorption and ejection—taking in and giving out. It is a process of interaction.

Thus we get to know each other, to understand the differences of individual, inimical, and communal interests—to have confidence and to combine.

This is the foundation principle upon which we raise the structure of social and commercial prosperity.

Business is now done right out in the sunlight. Publicity is the salvation of both dealer and consumer.

The buccaneer is banished from business.

The merchant realizes that according to the quality of his goods, so will his business prosper.

And the purchaser, recognizing that the merchant knows this, and proving by actual purchase and test that he lives up to his principles, gives him his business.

I have said that we are breaking away from distrust of our fellows. That is true; but we still find people whom it is a task to induce to believe this.

The vast majority of people, though, see that the man who advertises his commodities or service as "quality" must produce them—else his successful days are numbered. And if he provide products that fill the bill, then he and they benefit.

No Trade Paper will publish punk publicity.

The Trade Paper is a publication wherein can be found ideas, plans and information.

The reason is that its subscribers are alert and progressive—alive to their possibilities and to the good things in the world of science and invention.

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Whether you call this sentiment or something else, yet it is the very essence of success, producing results otherwise unattainable.

The Trade Paper has made giant strides. Its intimacy and strength with its subscribers and contributors is remarkable. But its greatest achievement, to my mind, is the creation of a bond of sympathy, mutuality and understanding between its subscribers and advertisers that is unique.

And we do business with our friends—our enemies will not trade with us, anyway.

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Cost Figures of Plant Administration by Dwight T. Farnham is but one of the valuable features that will appear in the May 5 issue of "Brick and Clay Record."

Another is

How to Build a Continuous Kiln by George Vater—Other timely articles by recognized experts will be presented for your consideration.

San Francisco Fair Gives

THE opportunity offered by the Panama-Pacific Exposition for manufacturers of burned clay structural material is too important to be missed. A way in which a lasting impression may be made upon the public mind is outlined in this article and immediate action is urged.

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The Exposition as It Looks Today. View Taken from an Aeroplane One Year Before the Official Opening of San Francisco's Great World's Fair.

PERMISSION for space on the grounds of the Panama-Pacific Exposition at San Francisco has been granted tentatively to the clayworkers of the Nation for the erection of a model burned clay residence of moderate cost to show the millions that will visit the great World's Fair in 1915 how a properly constructed, permanent fire-proof, frost-proof, flood-proof house of pleasing architecture should be built.

The concession comes from Charles E. Van Barneveld, chief of the Mines and Metallurgy Building and follows overtures made by "Brick and Clay Record." It is now up to the manufacturers of facing brick, common brick, hollow block and roofing tile to construct the model house, calling upon the bricklayers' union to contribute the labor, and take advantage of this inexpensive method of presenting the numerous advantages of burned clay construction in a most convincing way before the greatest audience that ever gathered to view the progress of the world.

The manufacturers of cement, gypsum and lumber have not hesitated to accept the invitation of the Exposition officials and already are actively engaged in arranging their exhibits. That these exhibits will show all the latest methods of using their products and that they will show these products to their very best advantage is not to be doubted.

Through the decision of the National Brick Manufacturers' Association not to father the proposition made the brickmakers at the New Orleans convention by the "Exposition of Big Ideas" which is to be held in the Crescent City next year, the clayworkers have a clear road on the San Francisco plan. The New Orleans scheme was for the brickmakers to either supply the necessary brick to construct all the exposition structures or to contribute $150,000 for the purpose of purchasing the brick.

Fritz Salmen, third vice-president of the N. B. M. A., and a member of the executive committee of the same body, was appointed special investigator on the proposition and reported that in his belief it was one worthy of acceptance. He went so far as to advise the raising of $150,000 and laid before the N. B. M. A. a detailed plan for obtaining this fund.

Mr. Salmen's suggestion was given in full in the April 7 number of "Brick and Clay Record." Following this publication Theodore Randall, secretary of the N. B. M. A., was written and asked what action had been taken in the matter. His reply follows:

> While the returns are not all in it is quite evident that, as an organization, the N. B. M. A. will take no part in any attempt to place stock in the Exposition company. I have replies from several of the executive committee with which the matter was left and not in a single instance are the members favorable to any such procedure.

First Proposition

An exhibit of clay products in the Mines and Metallurgy Building, with model machinery making miniature brick or tile and a fireproof, frostproof, floodproof residence constructed in the Exposition enclosure, but away from the Main Buildings. Here sewer pipe and drain tile could be shown and manufacturers of all clayworking machinery interested.

Space to Clay Products

IF some concerted action is taken at once, brick and hollow tile will be able to make a showing instead of leaving the field to their greatest competitors, concrete and gypsum. Do you doubt that these materials will seize the chance to steal a march on clay structural materials?

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In the Immediate Foreground is the Site of the Palace of Fine Arts, an Arc Eleven Hundred Feet Long on Which the Frame of the Building is Shown.

Brickmakers, generally, take the view that the Exposition is a local enterprise and should be financed as such.

That the idea of building the Exposition of brick meets with the approval of every clayworker because of the great publicity that could be obtained is not to be questioned and naturally brickmakers want to see brick used, anyway. However, the idea of raising $150,000 seems to take the plan outside of all possibility and the New Orleans show either will have to buy its own brick or turn to concrete or stucco or some other material.

The San Francisco idea, however, seems to be practical and is one that at least does not mean any great investment.

There are two propositions suggested to the clayworkers of the Nation, each embodying a general display of clay products in the Mines and Metallurgy Building and the construction of a model burned clay residence of moderate cost. These follow:

Second Proposition

A more comprehensive exhibit in the Mines and Metallurgy Building, embodying the display of raw materials and finished product, together with a sectional structure that would show the methods of using brick and hollow tile, roofing, floor and wall tile, with printed matter detailing comparative costs of various methods of construction—clay, cement and frame.

THE FIRST PROPOSITION—(a) The general display of clay products in the Mines and Metallurgy Building. (b) The construction of a model residence on the Exposition grounds.

(a) This exhibit is a part of the general scheme of the Exposition and is mapped out in its descriptive literature as a portion of the plan to show the progress of all industries. It will have to be arranged in accordance with the requirements of the Exposition and will include both the manufactured product and the machinery that makes it. Here the raw shale and clay will be shown and the process of its treatment, manufacture, and delivery illustrated either by working models or other methods. This will offer an unlimited possibility for an attractive exhibit of all clay products.

(b) This proposition was suggested by this journal as offering a most unusual opportunity for the manufacturer of burned clay building material. It proposes the erection of a model residence on the exposition grounds. The Exposition officials gave evidence of some hesitancy in consenting to the idea because every building on the grounds was of a uniform architecture and a brick building might be out of harmony. However, after some persistency, permission has been obtained for space at a point where this lack of harmony will not be so noticeable.

The plan proposes the erection of a model fireproof residence, showing two forms of construction—hollow block walls with facing brick veneer and common brick walls treated similarly. To all outward appearances the construction would be the same. Portions of the interior walls, however, would be left uncovered to expose the hollow block or the common brick with their air spaces and fire-resisting qualities as well as to establish the idea of permanent construction.

Printed booklets giving a description of the model house, showing floor plans and listing the specifications, together with the items of cost in various localities, would be prepared in such quantities as to supply every visitor with a copy. These books would be so comprehensive in their nature that a prospective homebuilder could take his copy to his local contractor and tell him to build him a house "just like that." Other houses might be listed with working plans, as well, giving the book still greater value.

In addition to the above features the books could show comparative costs of the burned clay house with houses built under the same plans of concrete-stucco and all-frame construction.

A lecturer or demonstrator could be employed to stay in the building constantly to answer questions and explain the construction details.

THE SECOND PROPOSITION—(a) The general display of clay products of all sorts in the Mines and Metallurgy Building. (b) The construction in sections of a model fire-proof house, the same to be installed in the general exhibit referred to above.

(a) In this suggestion the plan of the general display would have to be so arranged as to permit the installation of the sectional portions of the model house.

(b) The sectional idea of a model house would not show how the house would look when complete, but it would show the method of construction and give a clear idea of how a permanent fire-proof residence is built. This idea probably will be followed by the concrete manufacturers as well as by the other building material men. In fact, the plans as already outlined are understood to follow this idea. The gypsum people, for instance, not only are planning to show sample walls and partitions, but are said to be having moving pictures taken of their methods of manufacturing the material and its applications. These films undoubtedly will be shown in some practical way within the confines of the exhibit.

That the clayworkers have gained a material advantage over all other industries by the concession secured from the Exposition company is evidenced by the following letter from Chief Van Barneveld to this journal:

> On the subject of the building (the one proposed to be erected on the exposition grounds) I will say that at the outset every large organization wanted a special building regardless of classification and so a definite policy was established. As you know, the only salvation of a definite policy is rigid adherence thereto
>
> The clay people at a convention held in Chicago last year wanted to arrange for a permanent building which would be a permanent exhibit of clay products. This plan was advocated in various sections of the country. It is impracticable for various reasons, one of which is that none of the buildings on the Exposition grounds are to be permanent and must be torn down at the close of the fair.
>
> If you will study the general appearance of the Exposition plan submitted to you I believe you will agree with me that a relatively small building placed in the vicinity of the exhibit palaces would be lost as the Exposition is very compact and the buildings are very large.
>
> Space MIGHT BE FOUND for a building west of the various state and foreign buildings. Your brick building, however, would, it seems to me, not be in very good keeping with its surroundings. Furthermore, it would be out of the regular course of the visiting public.
>
> If, in SPITE OF THIS, YOU FEEL YOU WOULD LIKE TO TAKE UP THE QUESTION OF SUCH A BUILDING, I WILL NOT STAND IN YOUR WAY AND SHALL DO ALL THAT I CAN TO HELP YOU IN YOUR CAMPAIGN.
>
> I fear, however, that it would interfere with the indoor exhibit in the Palace of Mines and Metallurgy, which can be made very attractive and instructive and, therefore, of decided benefit to the trade.
>
> It occurs to me that a portion of this space could be set aside for exhibits that will show all sorts of brick and tile construction. This, I believe, would answer the purpose better than a complete building. Will you not think this over and let me hear from you again?

Mr. Van Barneveld's suggestion that the brick and hollow tile house be made a part of the general exhibit of clay may appeal to the manufacturers of these products. The suggestion, as is the other, is up to the clayworkers of the Nation.

There are only two important industries in the clay working field that have taken up an active compaign to be represented so far as is known by this journal. These are the potters and the paving brick manufacturers.

The potters, it is understood, are arranging for quite an elaborate exhibit and will use motion pictures to aid in giving an idea of how pottery is made.

The paving brick manufacturers are being brought into line through the National Paving Brick Manufacturers' Association. Will P. Blair, the secretary of this association, in answering a recent letter from this journal, wrote:

> We have had some correspondence with the chief of the Department of Mines and Metallurgy along the lines outlined in your letter. We have in mind some sort of scheme by which each manufacturer in our membership will furnish for this exhibit a sample of his clay and a sample of the brick manufactured from his clay. We have debated the matter with some of the membership and unless some other course seems more advisable may carry out these suggestions by supplying to our membership uniform cases in which they can place the clay and uniform boxes in which the respective samples of brick may be placed. Understand that this is the scheme under consideration and we are doing what we can to encourage its consummation.

The American Face Brick Manufacturers' Association held an executive session in Pittsburgh a few days ago to discuss the San Francisco exhibit, as proposed by "Brick and Clay Record," and is making an investigation with the idea of giving it an indorsement if found practicable. Secretary Hollowell writes as follows:

> With reference to our correspondence with you on the proposed house at San Francisco beg to advise that our executive

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This Panoramic View Was Taken February 23, 1914, Practically One Year Before the Opening of the Exposition, Set for February 20, 1915. The Outlines of the Buildings are Drawn in, to Give an Idea of the Skyline.

> committee met here yesterday (April 9) and carefully considered the matter. The desire for more information was expressed and I have today addressed several communications to parsons interested in order that I may collect additional data to present to a proposed meeting to be held early in May.

If either of the plans suggested above are feasible and meet with the approval of the industry generally, some action must be taken at once, as the time limit on allotment of space is short.

To place the matter in a more concrete form, "Brick and Clay Record" suggests the following as a way of reaching some definite understanding:

THAT delegates be appointed from each of the national organizations of clayworkers—the National Brick Manufacturers' Association, the American Face Brick Manufacturers' Association, the Face Brick Dealers' Association, the National Paving Brick Manufacturers' Association, the Western Paving Brick Manufacturing Association, the Eastern Paving Brick Manufacturers' Association, the Society of Vitrified Clay Manufacturers, the International Clay Products Association, The American Refractories Association, the Denison Hollow Tile Licensees' Association, the Potteries Association, the Mantel and Tile Manufacturers' Association, the National Machinery Association, and all other associations that may not be here listed but which are interested in the proposed exhibit.

THAT these delegates arrange for a meeting at an early date and discuss the proposed exhibit with the idea of formulating some definite plan of action and creating a fund for the purpose of carrying out that plan.

Concerted action must be taken if anything is done at all. Individuals cannot arrange the exhibit with any harmony of detail or design. Some one person or committee must attend to this.

The space allotted by the Department of Mines and Metallurgy for the clay product exhibit is liberal, but has its limitations at that.

There are two spaces facing each other and near the grand entrance to the Bay. In the central aisle between these two spaces one of the large terra-cotta firms on the Pacific coast has arranged to erect a huge fountain and pavillion of special design. This will entail an expenditure of several thousand dollars and will be a most beautiful central figure around which to group all the exhibits.

The general plan of the exhibit, as arranged by the Director of the Palace of Mines and Metallurgy, as as follows:

SPACE NO 1—(a) A display of all the clays, shales and other materials used in the manufacture of building brick, hollow tile, paving brick, roofing tile, architectural terra-cotta, sewer pipe, drain tile, etc. (b) Processes of utilization with specimens of their products. (c) Brick and tile machinery.

SPACE NO 1—(a) Raw materials, particularly chemical products used in ceramic industries. (b) Equipment and methods used in the manufacture of earthenware; machines for turning, pressing and molding earthenware; furnaces, kilns, muffles and baking apparatus for earthenware; appliances for preparing and grinding enamels. (c) Various porcelains. (d) Bisque of porcelain and of earthenware. (e) Earthenware of white and colored body with transparent or thin glazes. Faience. (f) Earthenware and terra-cotta for agricultural purposes. (g) Stoneware, plain and decorated. (h) Tiles—plain, encaustic and decorated; mosaics, tile, and brick for floors. (i) Fire-proof materials. (j) Statuettes, groups and ornaments in terra-cotta. (k) Enamels applied to ceramics. (l) Borders for fireplaces and mantels.

It will be seen that in Space No. 1 an opportunity is given for the building and constructive materials and that in the other space, designated as No. 2, that the finer arts of the industry are to be taken care of. Also, it will be observed that a well-organized scheme is planned, showing in each group the raw materials, the methods of manufacture, the product itself and the machinery that makes the product.

The paving brick manufacturers not only could show their shale and manufactured brick or block as Secretary Blair has suggested, but also could show a model of a perfectly constructed brick road.

The sewer pipe manufacturers, the drain tile manufacturers and all the other constructive material manufacturers could do likewise.

All these are possible and will offer some working basis for someone to take the initiative.

But the initiative must be taken before any or all of the ideas can be utilized and it is up to the various organizations to get in touch with each other immediately and arrange for a conference of some sort if anything is to be done at all.

Five Associations Adopt Open Price Policy

Middle West Organization Started by Chicago Face Brick Dealers' Adoption of Eddy Open Price Plan

WITH THE election of officers and the choice of a secretary, the members of the reorganized Chicago Face Brick Association formally launched the open price policy Wednesday April 15 and are now operating under the Eddy plan. The old name of the association is retained for the present, at least, but later it may be changed to a broader and more comprehensive title, if it is deemed advisable to use the face brick dealers and manufacturers as a nucleus around which to form the proposed central west organization of all clayworkers.

Almost simultaneously with the election of the new officers under the open price plan by the Chicago organization, the Western Paving Brick Manufacturers' Association, with headquarters at Kansas City, Mo., took similar steps and on Saturday April 18 held a special meeting at which a constitution and by laws were to be adopted and new officers selected with the idea of beginning operation under the system May 1.

The Chicago Face Brick Association elected the following officers: President, L. D. Binyon, of the S. S. Kimbell Brick Co.; vice-president, Charles Bonnor, of the Bonnor & Marshall Brick Company; treasurer, Martin Kimbell, of the Kimbell-Hill Brick Company; secretary, John D. Blount, of the Meacham & Wright Brick Company; assistant secretary, Louis F. Desmond.

The location of the offices will be at 1211 Chamber of Commerce, Chicago, for the present at least.

Arthur Jerome Eddy, the author of "The New Competition" and creator of the open price idea among industrial bodies, is guiding the destinies of the organization through its early constructive stages and not only wrote the constitution and by-laws but also prepared the reporting plan and mapped out all the blanks to be used in this feature of the work.

The peculiar nature of the face-brick business and especially as it is in the Chicago field, is going to be a severe test for the open price policy, as the reporting of price quotations and the other items that go to make up the Eddy plan are rather involved, and are somewhat complicated by conditions peculiar to this market.

It is safe to wager if the face-brick dealers in Chicago can operate successfully under the scheme, no other industrial body need question its value or its adaptability to its requirements.

The Chicago association began operations under the plan only on April 15 and it would not be fair to either the association or to Mr. Eddy to attempt to judge its value from the short period of operation.

With these two aggressive bodies of clayworkers adopting the Eddy plan, and the others that already have adopted it or who are making plans to do so at an early date, the open price policy has received an impetus that augurs well for a safe, sane and legal business relationship in the future, among the manufacturers of clay products.

The clayworking bodies that are now under the Open Price Policy are:

The Society of Vitrified Clay Manufacturers (Sewer pipe). Secretary, W. H. Bassler, 814 Chamber of Commerce, Chicago.

The Iowa Clay Manufacturers' Association, (Embracing all manufacturers, and statewide in nature). Secretary, C. B. Platt, Van Meter, Iowa.

The Western Paving Brick Manufacturers' Association (Covering paving block manufacturers west of the Mississippi River). Secretary, George W. Thurston, New York Life Building, Kansas City, Mo.

The Chicago Face Brick Association, (Embracing, for the present, only the face-brick dealers of Chicago). Secretary, John D. Blount; assistant secretary, Louis F. Desmond. Offices, 1211 Chamber of Commerce, Chicago.

The New York Face Brick Association, (Embracing the face-brick dealers in Greater New York.)

In addition to the above, the Illinois Clay Manufacturers' Association, secretary, A. E. Huckins, Champaign, Ill., by vote, adopted the open price and a temporary organization has been effected with the idea of ultimately getting the clayworkers in the Central West interested in a more comprehensive organization.

There are also several other clayworking bodies, some of them national in scope, that are considering the plan, but these are not sufficiently far advanced to warrant announcement at this time.

A new state association, which was launched April 2 at Cape Girardeau, Mo., and which is now in the formulative period, is planning the open price policy and at a meeting to be held April 30 will take up this angle in a serious way.

This association is to be a small one at the start, embracing only eight or ten manufacturers in southeastern Missouri. It is expected, however, that plants in southern Illinois and eastern Kentucky will come in later.

Engineering Papers Criticize Glynn Plan

Indorse Arguments for Brick Paving But Claim Convict Labor Scheme Impracticable and Against Public Policy

LEADING municipal, good roads and engineering journals throughout the country are attacking Governor Glynn's recommendation that convict labor be employed in making the vitrified paving block which, in his recent special message to the New York State Legislature, he urged should be used exclusively on all heavily-traveled highways as a matter of economy.

While indorsing his statement that vitrified paving block are more permanent and the only truly economical paving material, these representative journals declare that the employment of convicts in the manufacture of the product always has been a failure and always will be because of the technical knowledge necessary for the proper production of the material.

The daily press of the country is also adding to this clamor against the employment of convict labor, some taking this stand purely on the proposition of using convicts against free labor in manufacture, while others use the same argument as is used by the technical journals—that of the proposition to use untrained men where the experience of the brick manufacturers has taught that only skilled help should be employed.

In the meantime, while this discussion is consuming columns of printers' ink, Governor Glynn has signed the bill that was passed recently by the New York State Legislature appropriating $50,000 for the erection of a paving brick plant at the Elmira Reformatory, and State agents are busy breaking ground for the work.

Coincident with the announcement on April 9 that Governor Glynn had signed the bill, Commissioner Carlisle of the State Highway Department, in an interview, stated that he had decided to build the first highway under the new provisions from Horseheads to Cayuta in Chemung and Schuyler counties.

"The road will be built first of concrete five inches thick, similar to those built in this state prior to this year," said Mr. Carlisle. "As soon as the plant is established at the reformatory and brick can be made that will meet with the requirements of the highway department, they will be used for the resurfacing of the road."

"A road built in this manner," concluded the Commissioner, "certainly will cost no more than macadam and will provide a highway that will outlast the entire life of the highway bonds."

"The Municipal Journal" of New York City, recognized as an authority on street and highway paving construction, and edited by a staff of experienced engineers, expresses the opinion that vitrified paving brick or block made by convict labor, "to say the least, will not be up to standard."

Here is what the "Municipal Journal" says, editorially:

"As to the idea of using convict labor for manufacturing brick, we hope for the sake of the state that it will not be adopted. The making of good, or even fair, paving brick is a science and an art which has been years in developing. It requires the intelligent mixing of proper raw materials under expert supervision, and burning by experienced men alert day and night to maintain proper conditions; and, finally, careful culling by men who know that particular make of brick and the meaning of each small variation in color or surface texture.

"Where will the state obtain these men? Assuming it secures the best of superintendents, he cannot train them from the men ordinarily found in a penitentiary, except

C. E. FOSTER
Who Has Large Interests in New York and Pennsylvania Paving Brick Plants.

possibly by a long process of elimination to discover the necessary combination of ability and willingness to use it. And the man so found and trained may have completed his sentence by the time his services are valuable.

"Except in the excavating of the clay there is comparatively little use for unskilled labor in a modern brick plant turning out high-grade brick, and cheap, unskilled labor is all that the state has to offset the recognized handicap against efficiency which is furnished by politics and other conditions apparently inseparable from state work. It would appear as though a number of experienced men must be employed, and that the hope of saving money by this plan would be futile.

"Even more serious is the probability that the output would not be up to standard, and that the roads of the state would suffer accordingly. Every combination of clays and shales found in the various localities where brick are made requires a certain treatment of its own as to mixing, burning, etc., to produce a first class brick; and this can generally be learned only by trial extending over months and years.

"Meantime, what would the state do with the brick turned out, and later on with the culls? Sell them for purposes other than paving in competition with the Hudson river brick makers? There would be too much pressure on the highway engineers to permit of this or of as rigid an exclusion of poor brick as is now possible. There would seem to be every reason, therefore, for fearing that poor brick would be used.

"The use of prisoners for quarrying, stone crushing and making macadam and bituminous roads has proved a success in several states and might be tried in New York on a more extensive scale; but using them for making paving brick would, we fear, be a costly fiasco."

"The Engineering News," of New York, one of the best known engineering journals printed, and recognized as an authority on highway engineering, treats Governor Glynn's message and recommendation very exhaustively using two or three pages for editorial comment and reprinting the message in full in the news section of the magazine.

Governor Glynn's ideas about vitrified brick are indorsed, but his employment of convict labor in their manufacture is questioned.

After devoting several columns of space to the merits of brick the "Engineering News" says:

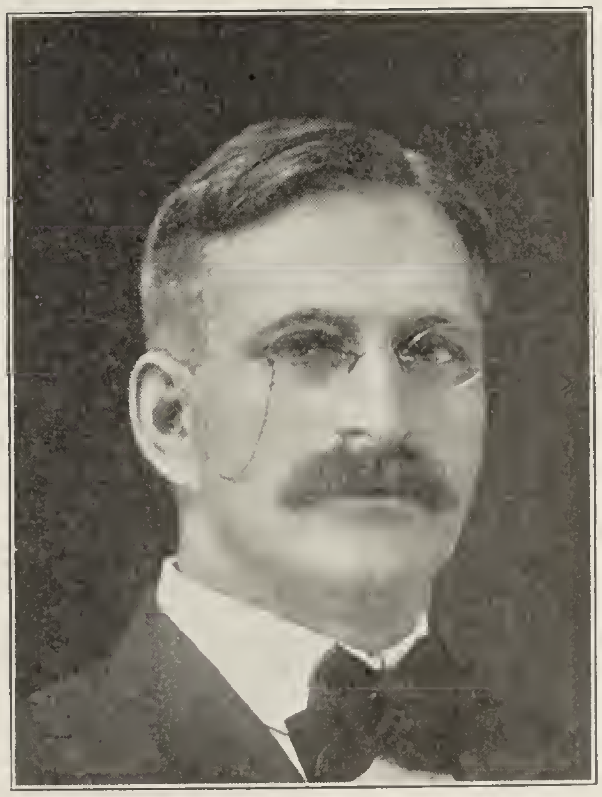
"Governor Glynn proposes, in order to cut down the cost of brick paving, to have paving brick manufactured by convict labor. According to the New York State geologist, there are plenty of shales in southern New York suitable for paving-brick manufacture. The Governor recommends that an experimental plant shall be started in connection with the State Reformatory at Elmira and a bill appropriating $50,000 for this was introduced in the legislature.

"If it is true that the shales in this section of New York are suitable for making good paving brick, the Governor's message ought to lead to the establishment of numerous paving-brick plants in this section operated as a private enterprise.

"At present, the manufacture of paving bricks in New York State is an infant industry. The total output of the few plants in operation is trifling compared with that produced in Ohio. This is partly due, without doubt, to the fact that the merits of first-class brick pavement are not understood by the general public in the district east of the Alleghenies. It is probably due also to a lack of experience in paving-brick manufacture on the part of those in charge of some of the enterprises which have been started, and possibly also to some deficiency in the raw material in New York compared with that found west of the Alleghenies.

"There is, however, a large possible market for good paving brick in New York and other Eastern states. If raw material is available for the industry, those who would engage in it as a private enterprise need not hesitate because of Governor Glynn's proposition to employ convict labor in the business.

"There are well known drawbacks in the use of convict labor. In the manufacture of paving bricks under modern conditions, a very large part of the work is done by ma-



M. E. GREGORY
Who Makes Paving Brick at Corning, New York, About Twenty Miles from Elmira.

chinery. In a large paving-brick plant the shale is dug by a steam shovel instead of by human muscle; it is ground and mixed by machinery, and the brick emerge from the brick machine ready to be placed in the kiln for burning.

"While a considerable amount of labor is employed in connection with paving-brick manufacture, a large part of it is highly skilled labor, requiring reliable and experienced men, and the use of convicts would involve a considerable element of risk.

"If we assume 75c per sq. yd. as an average figure for the manufacturing cost of paving brick, it will be found that a large part of this cost must be charged to the items of fuel, supplies, repairs, and interest on the plant, general overhead charges, with superintendence and other skilled labor, leaving perhaps only half the cost, more or less, to be assigned to the ordinary labor employed. Even if this labor were obtained for nothing, therefore, by the employment of convicts, it would mean no such large saving in the cost per sq. yd. of brick paving as is assumed by Governor Glynn.

"Besides this, the almost inevitable inefficiency in the conduct of a manufacturing plant run by state officials, who know very little about the business they are undertaking, will almost inevitably lead to larger operating expenses than would be necessary for a private concern run by an intelligent business man who knew every detail of the industry he was carrying on.

CHARLES M. CROOK
A Paving Brick Manufacturer at Catskill, N. Y., Who Will be Affected by Convict Labor Competition.

"We might elaborate these reasons in much more detail, but enough has ben said to show that Governor Glynn is much too sanguine in supposing that the cost of building brick roadways in New York State can be materially reduced by the use of convict labor in brick manufacture."

Referring to Governor Glynn's idea on the economic problem of road building in which the Chief Executive points out the great advantage of brick, the "News" says:

"As often happens, however, when a layman undertakes to deal with technical matters, there are a number of features in Gov. Glynn's interesting statement which need some qualifications before they can be accepted by engineers. Without questioning the soundness of his main position, it must be said that the selection of any single type of roadway for State road work, to the exclusion of all others, would greatly hamper the engineers in charge in securing the best results.

For example, a large part of the State roadway construction in New York involves considerable realignment and heavy grading. There are many places where it is better by far to lay a cheap temporary pavement of some sort, or even to leave it as an earth road, perhaps with a light dressing of gravel until the fill is thoroughly consolidated, the slopes have become permanent, and washouts in the gutters and down the sides are no longer serious. After a period of one or three or five years, it may be wise to lay a permanent and expensive pavement of brick or of concrete; but if laid at the start on a fill which is still to receive its final settlement, the result is very likely to be an uneven pavement with its surface cracked and broken, which will soon show the effects of a traffic and will require vastly more expenditure for its maintenance than the $50 per mile per annum assumed by Governor Glynn as reasonable.

Again the extreme variations in the cost of roadways of different types are very much greater than the amount which Governor Glynn has assumed. While he does not state the width of roadway on which his estimates are based, it is evident that in order to justify an expenditure of $12,000 to $25,000 per mile in building a road, it must have a traffic heavy enough to make necessary a double-track width, or say, 16 ft., which is, in fact, a common standard in State highway construction. Such a roadway requires 9,386 sq. yd. of surfacing per mile. The figures given by Governor Glynn for macadam, concrete and brick roads, respectively, might be assumed, therefore, to correspond to an approximate cost of about $1.20 per sq. yd. for macadam, $1.50 per sq. yd. for concrete, and $2.50 per sq. yd. for brick.

It must be remembered, however, that the figures per mile given above include usually many items beside the cost of the wearing surface. Whether a road is paved with concrete, macadam, or brick, it must have the same amount of work spent on grading, on drainage, on the paving of gutters, etc., on dressing and sodding of slopes, on guard rails at dangerous places, on bridges and culverts, and on such minor items as sign boards, warnings, milestones, monuments, etc., besides the enginering expenses in connection with surveys. All these are included in the twelve thousand odd dollars which the Governor assumes as the cost of macadam roads, making the actual cost of the wearing surface itself very much smaller than would be indicated on the face of the Governor's figures. **"The deduction from these facts, of course, is that the disparity in first cost between the macadam road and the permanent road of brick, is considerably more than would appear on the face of the returns."**

It can be seen from these editorial comments what the leading engineering journals of the country think of brick as a permanent and an economic highway material, and also what they think of the employment of convict labor in the manufacture of brick.

From these comments the brick manufacturer may find confirmation of what he already knew—that "just any one cannot make good brick," and he need not fear that state control of the industry is anywhere near or is it likely to ever freeze him out of a business that has taken him years to learn and many thousands of dollars cost in experiments to bring to the present high state of efficiency.

Iowa Plant Installs Modern Machinery.

John Koetting & Sons, Muscatine, Ia., have converted their soft mud hand-made brick plant into a modern dry press brick factory and were to be ready for operation early in April. The C. W. Raymond Company has installed the machinery. The plant begins operations with 18,000 daily capacity but is so arranged that this may be increased to 36,000 by the installation of another machine at an early date. A test of the material shows that a most excellent product can be made, the clay burning from red to buff, with many intermediate shades.

An Old Type Sidewheeler and a Modern Propeller Tug, Towing to Market Ten Million Hudson River Brick, Through the Superb Highland Section of the "Rhine of America."

Calking the Leaks in Brick Shipments

How the Hudson River Brickmakers Plan to Obtain Greater Efficiency in Selling Their Product in the New York Market

By Allen E. Beals

EASTERN common brick manufacturers may lack some of the more modern equipment of their western craftsmen, but it may be said for them that they are apparently more alive to the needs of a comprehensive selling and distribution system than exists in many other centers. In fact, a plan has been under way in the New York market for the last three years that, if successful, will give brick manufacturers the country over a basis upon which to sell their brick along the same progressive lines that producers of competing materials have adopted.

Considerable mention has been made of the new selling plan that has been in successful operation in New York for three years. It has followed the Greater New York Brick Company's fortunes through judicial investigations inspired by brick consumers and other opposing influences and has watched it come through that trying ordeal exonerated from any monopolistic intention or effect. Now that the path of modernizing the brick selling business has been cleared, the transportation problem, a most vexatious one in a district where water routes offer the only economical means of getting the product to market, is receiving attention.

Several meetings were held along the Hudson river during the week ending April 4. These were sectional gatherings called by Senator Brackett and other influential brickmakers for the purpose of acquainting the manufacturers with the problems that they will have to confront this year and, in fact, for some time to come. Meetings were held at Kingston, Newburg and Haverstraw, the three important brick making centers in the Hudson district and later in the week in New York city.

The meetings up the river were not largely attended owing to the fact that many manufacturers were in attendance at the annual meeting of their selling company in New York, but the meeting in that city had a more representative gathering. The proposition laid before the manufacturers was, in brief, as follows:

There are approximately 400 barges in the Hudson brick carrying trade. Of this number 225 are owned by brick manufacturers. The remainder are operated by private barge owners. The plan is to organize all the brick manufacturers owning their own brick barges into a company and to have them enter into an agreement to use only this barge company's boats for transportation of common brick from the plants to New York city docks. Good business rules were suggested, including demurrage charges which will insure a quick "turn" of the barges, and for an annual accounting of expenses and profits, in which all stockholders will participate. The plan does not involve, at this time, any changes in the system of towage, the Cornell Towing Company, which now controls practically all of the towing of common brick on the Hudson river, will, in all probability, continue to supply the motive power.

One cause for the instability of brick prices in the New York market is the alleged fact that there is an over-supply of brick barges. It is claimed that a plethora of brick barges encourages dealers to hold loaded barges until such time as they can get suitable prices for them. The market may thus be manipulated. The result is that a producer is forced to come into the market and dispose of his brick at the best possible selling price that an unsympathetic market will offer in order to clear his boats to move his brick in shed. In other words, with an over-supply of brick boats, the manufacturer, must either go out and hire a barge, if his are all tied up at docks in New York awaiting unloading, or come into the market and make a bargain price in order to encourage distributors to release his barge. In the former case an extra burden is laid upon him and reduces his margin of profit in a dull market. If he shades the current price to release his boat, his profits are likewise cut. In either case he comes out at the small end of the horn.

For years the barge problem has been a big one in the profitable conduct of the brick manufacturing business and, realizing this, the manufacturers have been compelled to take some action in calking up the leak. The formation of the company has not yet been completed and in the interim there are about 175 brick barge owners who are wondering what is to become of them if they are shut out of the Hudson river brick trade by a combination of producers. There are hints of a rate cutting campaign and other dire things if the deal goes through, but whether it comes to that or not, it indicates that the eastern brick makers have been finally aroused to the necessity of getting away from the old, unprofitable methods of doing business by meeting modern competition with modern economic management.

Comparative Cost of Brick and Frame Dwelling Houses

A report recently made by the committee on fire protection, of the Boston (Mass.) Chamber of Commerce, includes some interesting figures on the comparative cost of brick and frame construction for dwelling houses, says the "Insurance Post." The conclusion reached was that the slightly greater cost of brick, which averaged under 10 per cent more than frame, was more than offset in a few years by the lesser cost of maintenance and insurance and by the greater comfort and durability of the structure.

The report says that when lumber was cheap and brick was more expensive than now, the idea became general that the cost of brick as compared with frame was almost prohibitive, and this continues, although the conditions have changed so radically that the cost is now little more and the ultimate cost is less.

The purpose of the investigation was to encourage the use of brick and non-combustible interior construction for the purpose of fire prevention, and this form of building was very strongly urged by the report. Bona fide bids were obtained from five different contractors of good reputation on the cost of the construction of dwellings of brick, wood, cement and hollow blocks, the houses to be the same in every particular except the outer walls.

Bids were obtained on a modern eight-room house, of good design and excellent arrangement, such as is frequently built in and about large cities, and on these the bids of the five contractors varied comparatively little, and so the average was taken as a fair test of the practical cost, the contractors including their profits in all cases. The average bid for the various types was as follows, the second column showing the percentage of excess cost of each type over the clapboard type.

Clapboard	$6,759.95	.0
Shingle	6,868.80	1.06
Ten-inch brick wall, hollow	7,372.48	9.1
Twelve-inch brick wall, solid	7,641.00	13.0
Stucco on hollow block	7,187.65	6.3
Brick veneer on hollow block	7,483.16	10.7
Stucco on frame	6,952.90	2.9
Brick veneer on boarding	7,226.44	6.9
Brick veneer on studding	7,153.98	5.8

The committee corresponded with contractors in various parts of the country in making up its report, and found from them that brick buildings were commonly estimated to cost 10 per cent more than frame, while brick veneered buildings could be put up in many sections for 5 per cent more than the cost of frame buildings, the difference in cost being usually more than offset by the lessened insurance premium.

In the same way estimates were obtained on annual cost of maintenance, including depreciation, for frame and brick dwellings, and it was found that the frame dwellings cost 26 per cent more for maintenance and depreciation than the brick dwellings.

STATEMENT OF OWNERSHIP.

Required by the Act of August 24, 1912.

Statement of the Ownership, Management, etc., of

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H. H. Rosenberg.....Chicago, Ill.
C. L. Rorick.....Chicago, Ill.
Sherman Leach.....Chicago, Ill.
L. W. James.....Chicago, Ill.

Bondholders, Mortgagees and other Security Holders.

None.....

(Signed) C. L. Rorick,
Manager.

Sworn to and subscribed before me, this 24th day of March, 1914.

F. J. Sauer,
Notary Public.

Roger M. Combs of Chicago Makes a Suggestion.

The Steele Brick Plant at Statesville, N. C. Here Clays Are Tested Under Regular Commercial Conditions.

Twenty Thousand Brick a Day to Demonstrate Brick Machinery

MANY BRICK plants feel that a daily capacity of 20,000 or 6,000,000 annually, is a sizable enterprise in itself. To build a plant of that size, for the sole purpose of demonstrating the economy and efficiency of certain brickmaking machinery is, in that light, an exceptional matter.

Yet that is the daily capacity of the brick plant that is run in connection with the brickmaking machinery works of J. C. Steele & Sons, at Statesville, N. C.

The Steeles started this brick plant with two ideas in mind. They wanted it for testing clays that might be sent them by prospective customers and do it in a practical way, and they wanted to demonstrate to the South that high-grade brick could be made of southern clay.

Both of these ideals have worked out admirably. The Steeles are making a beautiful cherry-red, end-cut brick from clay that comes from within 20 miles of Statesville, being brought in on their own special clay cars over the Southern Railway and dumped into the massive bin shown on the extreme right of the accompanying illustration, which is a general view of their plant.

About 70 per cent of the product is sold and used for face brick. There is no antagonism at all on the part of southern brickmakers. They are glad to see the plant turning out the high-grade product it does, and it is openly admitted around Statesville that if it had not been for these beautiful brick there would be nothing like the number of brick houses that exist in Statesville today.

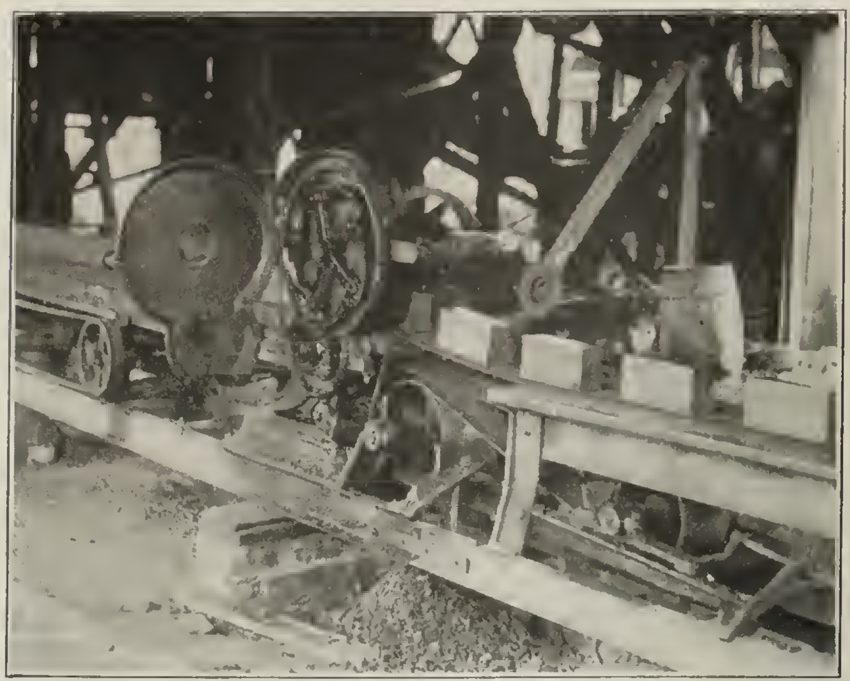
As an illustration of the type of brick houses in Statesville, a photograph is shown herewith of a residence now under construction. It is being erected of kiln-run brick and will cost $30,000. When it is considered that Statesville is a comparatively small city, having only 9,000 inhabitants, some idea of the beautiful homes in the little southern city may be had.

And the Messrs. Steele, four in number, are "practicing what they preach," for each of the brothers live in handsome brick homes built of the product from their own plant.

"The Steele boys," as they are generally referred to in their home town, come by their fondness for the brick and brick machinery manufacturing naturally.

J. C. Steele, the father, is one of the pioneer brickmakers of North Carolina, engaging in the brick and lumber business a quarter of a century ago. It was while employed in this that he conceived the idea of a brick-drying truck

The Machine Room in the Steele Demonstration Plant. Note the Steele Automatic Rotary Cutter and the Clean Cut Edges on the Brick.



Closer View of Steele Automatic Rotary Cutter, Gear Case Being Open. This Type of Cutter Makes Clean Brick from Soft and Tender Clay.

to be used in an open yard. He perfected this idea and had the truck patented. It met with such success on his own yard and was the cause of so many inquiries from other brickmakers, he began their manufacture, in a small way at first, and soon found himself a full-fledged manufacturer, as the orders came in and his production increased.

From the manufacture of this truck developed the great machinery manufacturing establishment of today. Other equipment was added to the manufacturing line until a complete catalogue of the most improved type brick machinery was being made.

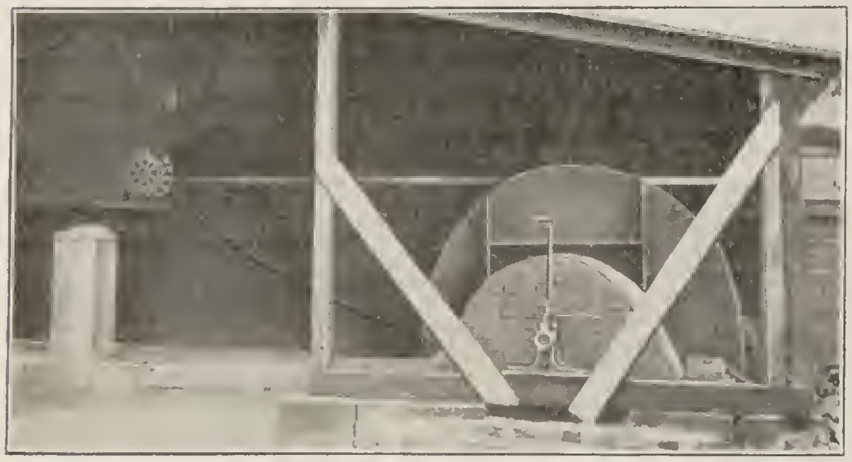
Today, the small machinery business of the elder Steele, once occupying a small building, is conducted in a factory plant covering four acres of ground, and is one of the most modernly equipped plants of its kind in the country. Every modern machine and appliance for increasing output, insuring the fullest efficiency and reducing the operating cost, at the same time improving the product, is installed, each and every wheel being turned by electrical power. It is, truly, a model shop.

As the business of the older Steele developed, and his sons, four in number, began to reach the age of maturity, he took them in with him one by one until all were actively engaged in machinery manufacturing business.

J. C. STEELE.
Founder of the "House of Steele."

As the years passed and "the Steele Boys" began to "take hold," the elder Steele retired and left his sons in full charge, the firm name remaining unchanged from that of "J. C. Steele & Sons." The elder Steele, while out of the firm now, could not remain inactive as his life has been a busy one, so he devotes his time now to Statesville's civic and philanthropic enterprises.

The four sons now at the helm of the Steele concern are: Charles M., who is general manager, giving his personal and constant supervision; A. P. Steele, who is in charge of the mechanical and designing end of the enterprise, from whose department comes all the new machines or the improvement over the old, for, like all modern manufacturers, the Steeles are striving constantly to make even a still better product; H. O. Steele is in charge of the selling end and on his shoulders rests the responsibility of marketing all the products of the concern. F. F., the youngest of the Steele



One of Two Waste Heat Fans of Sturtevant Type. These Fans Control the Heat in the Dryers and Are Run by Very Small Motors, As Shown in Illustration.

The Brick As They Come from the Dryer. At the Right Another Sturtevant Fan is Shown. These Fans Have Proven Very Economical and Highly Efficient.

boys, is assistant to H. O., taking charge of the sales force.

As has been stated, the Steeles manufacture a full line of brickmaking equipment and supplies. The entire energy of the firm, however, from the first, has been concentrated on the manufacture of stiff mud brickmaking machines and their appliances. Therefore, better results naturally can be expected, than if an attempt was made to build soft mud and dry press machines also. Every machine has been the subject of constant study and improvement, until now the modern, heavily built machines would not be recognized as having developed from the first machines made by this concern.

H. O. STEELE.

Located in the South, the bulk of the business very naturally has come from that section, although the Steeles have placed machines in almost every state of the Union, as well as in foreign countries. In serving the southern trade they have the advantage of freight rates, and the quick delivery of machinery and supplies. The Steeles have made a special study of southern clays which, it is claimed, gave them considerable advantage.

A Brick Maker's Brick Home, H. O. Steele's Residence at Statesville, N. C.

C. M. STEELE.

THE HOUSE OF STEELE

F. F. STEELE.

Outside of the pardonable pride which the Steeles take in the business as a whole, and the reputation that Steele machinery enjoys, they set greatest store, perhaps, on the Steele rotary automatic end-cut table, illustrations of which are shown elsewhere. Its only rival for favor, in their minds, is the Steele No. 6 brick machine, which is shown also in accompanying illustrations.

In principle, the cutter is a continuously revolving wheel, driven direct from the measuring pulley by irregular gears made in such shape as to cause the wires to cut the column of clay off square. An auxiliary, or friction belt, is provided to relieve the column of all strain, except that necessary to control the cut. This belt can be adjusted to cut the softest and tenderest clay, without swelling or breaking the column. The end of off-bearing belt nearest to cut-off is pivoted in such a way that it rises up under the brick just as they are cut off, carrying them off and separating them without pulling off the edges as other cutters do. The wires are easily attached. All who have used or seen this table pronounce it the smoothest thing they have ever seen for the purpose. Nearly one thousand of these have been sold, and every one has given satisfaction. Many of these are placed with brick machines of other makes, and where other cutters have proven unsatisfactory. In all cases where others have

A. P. STEELE.

Living Up to His Brick Ideals, F. F. Steele Owns a Modern Brick Home.

General View of Machine Room. Electricity is the Sole Motive Power and Modern Efficiency Methods Prevail.

South End of Machine Room.

failed and this cutter has been resorted to, it has proven a success. It can be attached to any auger brick machine.

As the reel is controlled with irregular gears and not with cams, there is very little wear, and they will continue to cut straight. Some of these cutters have cut forty million brick with no perceptible wear on these gears. They will cut on elge or flat. The Steeles advise, however, cutting on edge as the wires will leave the top edges perfectly square, suitable for face brick, and the brick can be handled much better in hacking.

A $30,000 Brick Residence Now Being Built of Steele Kiln Run Brick, in a Town of 9,000 Inhabitants.

The Steele No. 6 brick machine has a daily capacity of 50,000 to 150,000. One of the prominent features about this machine is that it has only two gears and four bearings—a reduction of three bearings, two gears, and one shaft, as compared with most machines of large size. The bearings are very large—from 4½ inches x 15 inches to 9 inches x 18 inches. The friction clutch pulley runs loose on a 7⅝ inches x 18 inches bearing, the clutch being cast steel. The gears are very large, thereby reducing tooth load and side strain on bearings to a minimum, and reducing power required, wear and tear to a minimum. The gears are cut, pinion being steel, and are housed and run in oil bath.

The thrust bearing is of the most approved design, and is placed in front of gear, the end thrust making it impossible to break frame. The outer end of the auger shaft is supported on the out-board stand, thereby getting distance between bearings, and again reducing side strain and friction.

The sills are very heavy "I" beams with heavy channel for side strain.

The machine can be taken to pieces without elevating any part and will run equally well in either direction. The cutter driving mechanism is entirely separated from more important wearing parts, and gets any speed in either direction.

The length of the machine over all is 15 feet; the width over all, 8 feet; the height, 70 inches; the diameter of gear, 66 inches, face 8 inches; the pulley shaft, 4$\frac{7}{16}$ inches.

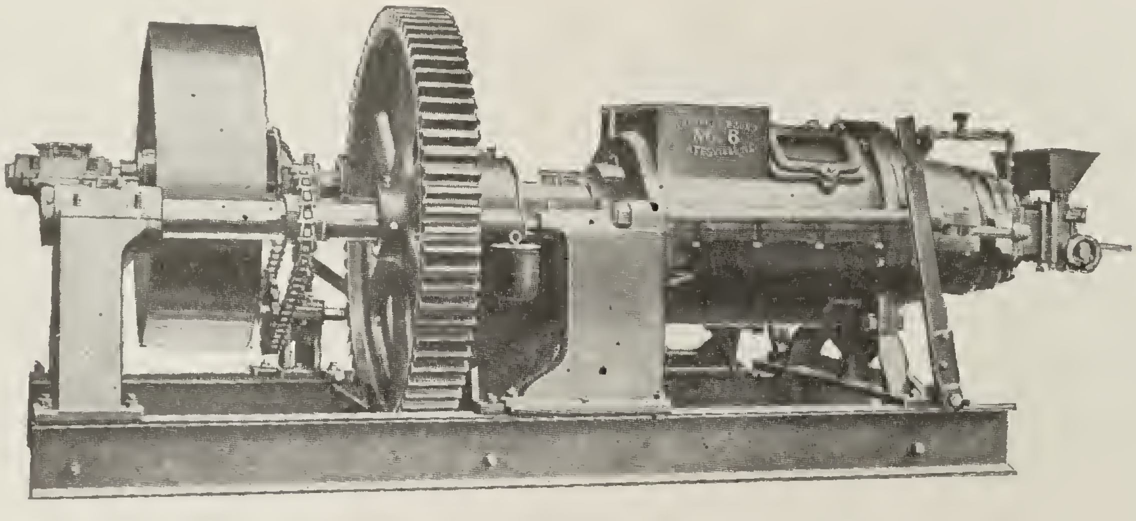
The size of the pulley is 16x52 inches, and should run from 150 to 275 revolutions per minute, depending on the capacity desired.

The standard auger shaft for brick is made of steel, with inserted adjustable forged steel knives, and renewable wearing surface or shell 9½ inchs in diameter. The machine is also equipped with a system of continuous augers and bushings, telescoping mouthpiece, etc., for any kind of hollow ware. In this case, the shell is left off and knives fit over shaft.

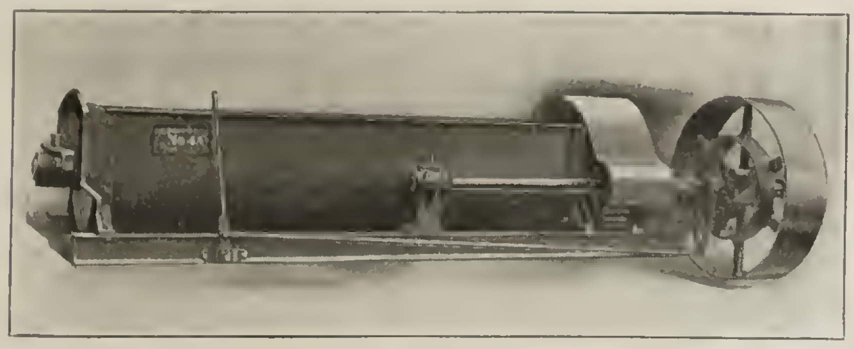
The approximate weight is 20,000 pounds. The power required is from fifty to eighty horsepower, depending on clay and capacity desired.

Owing to the slow speed of the gears, the auger shaft can be run about one-third faster than usual, giving a correspondingly greater capacity without undue wear and vibration.

The Steele Even Feeder is another one of the products of this factory which is strongly featured as a leader. This is a multiple shaft machine, fitted with a series of special knives so devised that they will not catch roots. It has the simplest possible gearing with heavy gears. The machine runs very slow, giving it long life. The gate for regulating feed is operated by a worm and the shaft of this can be extended to bring the hand wheel into convenient position.



The Steele No. 6 Brick Machine, Side or End Cut.



The Steele "No. 4 A" Pug Mill. Capacity 3,500 to 7,000 Brick An Hour.

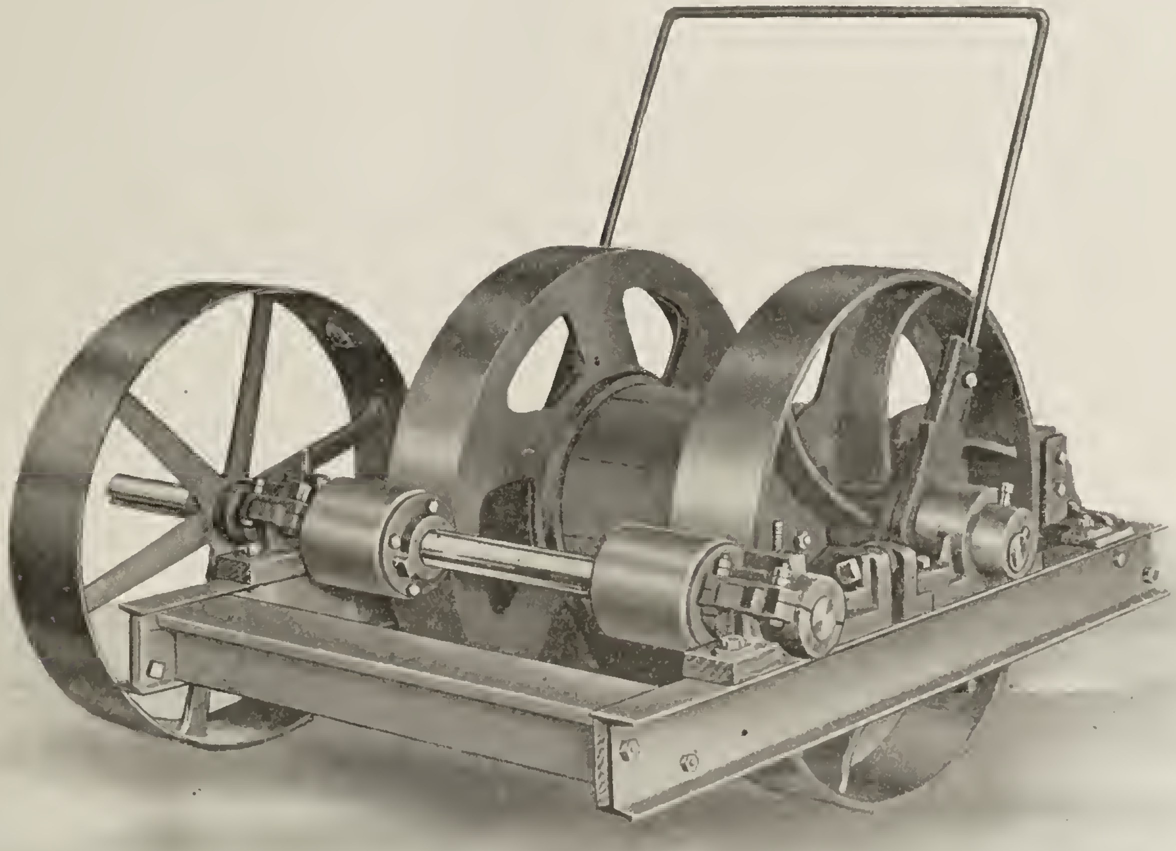
This machine weighs 6,500 pounds, and is very simple and substantial. The driving gears are enclosed and run in oil. Any knife or shaft can be taken out by removing one bolt in the spur gear type, or five bolts in the bevel gear type. The hopper into which the clay is dumped holds two and three-quarter yards, and is arranged for an extension to hold any amount desired.

This machine is made in both spur and bevel gear drive as may be desired. In the first case, the friction clutch pulley can be used on either end. In the second case, the friction clutch pulley can be fitted on either side, and it can be properly installed under any condition.

The power required is from two to five horsepower, most, if not all, of which will be saved by equalizing load on the other machines. It is designed to save the labor of from one to three men, and increase capacity of machine.

The Steele drying system, especially designed to meet the conditions of the southern clays and weather, has met with great success. Most of the southern plants, of course, use the open-yard method and the Steeles have devised a lift car system, with sheds of special construction, claiming great economy in operation and a uniform product.

Besides these featured machines and devices, the Steeles make everything required by a brick manufacturer, and have issued a complete catalogue illustrating and describing the entire line.



The Steele Double Friction Hoisting Drum. Made in Three Sizes.

Washington Plant Increases Capacity

Anticipating an increasing demand for tile drainage in the Yakima valley, the Granger Brick & Tile Co., of North Yakima, Wash., at its recent annual meeting made preparations for entering into the manufacture of drain tile on a more extensive scale than it has in the past. It will buy and install new machinery to give the plant capacity for turning out tile to meet the demands of the trade in this section.

The company owns 30 acres of fine clay soil in the vicinity of Granger and has demonstrated that the tile it produces is equal to the best that can be put on the market. The formation of drainage districts has led to an increased demand on the part of individual farmers for drain tile to use on their land. The use of tile in connection with the drainage of irrigated lands is now past the experimental stage and the company feels the need of entering the field before other competition may come in to absorb the business. The Granger Brick & Tile Co. also manufactures common building brick and drain tile at its plant at Granger, Wash., which is about 25 miles north of North Yakima. A. H. Smith of North Yakima, formerly sales manager for the company in this field, was elected secretary and manager at the meeting of the trustees last week. He has had an extensive experience in the manufacture of drain tile and expects to push that line of the business.

Cold Frames and Hot Beds Built of Brick

Amateur Gardeners Can Lay Brick Well Enough to Build Their Own Apparatus for Raising Lettuce and Other Green Things All Winter

By Wallace C. Illington

VEGETABLES out of season please the palate and satisfy the craving appetite and the man who lives on the farm or owns his own home in the town or city can have these delicacies if he only will take the time and trouble to build a hot-bed or cold-frame.

Home-grown lettuce and radishes may adorn the table practically all through the Winter months and he who has the room and the inclination may have even a more pretentious garden and take his surplus crop to market where winter prices make the effort worth the while.

The Fall—September, October or November, is the best time to prepare the hot-bed, although preparations may be started earlier or at any time convenient to the builder.

First, locate the bed. The sunny and wind-protected side of a building is the proper place to build your winter garden. The next step is to determine on your material. To avoid annual repairs and to secure the best results, choose brick. This material is impervious to moisture, keeps out frost and is ever-lasting.

A four-sash bed usually is large enough except for commercial purposes. A standard hot-bed sash is 3x6 ft. and is procurable at almost any dealer in builders' supplies.

Lay out the bed 6 ft. 8 ins. wide by 12 ft. 10 ins. long. Dig the foundation trenches 2 ft. 6 ins. deep within the space marked off. Some use only one brick thick for the walls and this is sufficient when the winters are mild but in sections where severe weather is the rule, a two-brick thickness will insure absolute safety from frost.

Common brick will answer the purpose and because of their cheapness and the ease with which they may be laid—no forms or troublesome mixtures being necessary as in concrete—they can be used by the amateur.

Before starting the walls measure the width and length of the sash and be sure the walls are so laid that the sash will lap them two inches on all sides. An extra 2⅝ inches should be allowed in the length for the three center bars of the sash. The height of the walls depend, of course, upon the nature of the plants to be grown. If lettuce and radishes are to be your crop, the back wall should be not less than seven brick high, which with the cement mortar joints will bring it to a height of about 21 inches. The front wall four brick high. This means you will have a sloping wall from the back to the front.

The inside course of brick should be laid on edge, that is, with the narrow side up. The brick for outside wall is laid flat. Inasmuch as the standard brick has a four-inch bed, and a two-and-a-half-inch edge, the wall, when completed, would be about 7 inches thick.

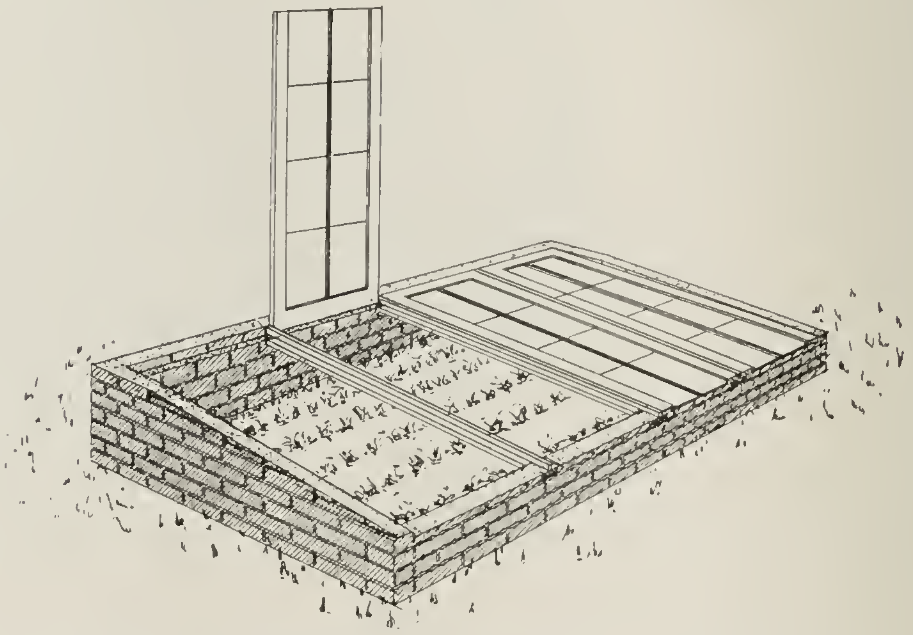
For mortar use good Portland cement and sand, mixed 1 and 1—that is, one portion of cement to one of sand—using sufficient water to make a good stiff mixture.

The only tools necessary will be a mason's trowel, at a cost of 35 to 50 cents, an old hoe to mix the mortar and a mortar board made of smooth planks nailed closely together.

The outside wall should be one-brick higher than the inside wall, thus furnishing a ledge for the sash to rest on. Dress the top of the brick walls with a liberal coat of mortar.

A hot-bed or cold-frame built in accordance with these specifications will be about half as cheap as concrete and can be erected in less than half the time without all the preliminary work in the way of form construction which calls for sufficient carpenter work to almost build a wooden-frame bed and which after completed would not be much better than the wooden one, so far as durability is concerned.

If the bed is to be used as a cold-frame, it is finished when covered with glass. For a hot-bed, dig out the dirt to the depth of 2 feet, tramp in 18 inches of fresh horse manure well mixed with leaves or bedding and cover it with 4 to 8 inches of rich soil. Bank the excavated earth around the outside of the bed. Put the sash in place, hang a thermometer on the inside and allow the bed to heat up. After a couple of days, when the temperature has dropped to 85 or 90 degrees, planting may be safely done.



Seed catalogues contain valuable information as to the length of time necessary to produce the different kinds of plants.

During the midday in bright weather, the bed will become too hot and must be ventilated for a short period by raising the sash on the side away from the wind.

Water the plants in the morning only and ventilate later to remove the moisture from the foliage. On Winter nights it will often be necessary to cover the bed with old carpets and boards, although a double glass sash will make this unnecessary.

How to Care for Engine and Boiler

By W. W. Phillips

Less attention is paid to the power equipment of a clay plant than to any portion of the establishment. This is so, chiefly, because an engine "will run itself" if left alone. This mistaken idea, however, has cost the manufacturer many unnecessary dollars. Mr. Phillips here gives some simple rules for caring for the engine and boiler which, if followed, will reduce repair bills and stop many expensive shut-downs.

IF YOU make brick you use power. You just cannot help it. It is one of Nature's perversities. The poor brickmaker is not only scoured to nothing by perpetual motion, but he must needs have "power." His "power" is not political nor financial. He usually has a plentiful lack of financial power. He must have "nigger" power, horse power and engines and boilers.

I propose to deal with power—power that every brickmaker uses—that is engines and boilers. Now, of course, there are some who are using gasoline engines, some gas engines, some motor power, and doubtless there are cases where such power is economical. There are cases where two horses and a mud wheel would be preferable to a high-class machine. I propose to deal with the ruling power—steam engines and boilers.

There are a multitude of both engines and boilers. They have one aim. I will explain, however, only a simple slide valve—D-slide valve, engine, and an ordinary tubular boiler.

A simple engine with a D-slide valve is composed of a cylinder, piston, piston rod, crosshead, crosshead pin, connecting rod, crank, crank pin, crankshaft, fly wheel, eccentric, eccentric strap, the eccentric rod, rocker, valve rod, slide-valve, steam chest and governor. That, I believe, is all, except, of course, the engine bed, shaft-bearing, frame, etc. I forgot to mention the ports and the exhaust. Everybody knows the steam enters from the boiler—enters the steam chest and passes into the steam cylinder. The pressure of course drives the piston forward and the pressure on the other side of the engine, together with the fly wheel, forces the engine back. It makes a reciprocating engine.

All working parts of the engine should be kept as tight as practicable. If all the bearings are fitted snugly there will be no knocking, or pounding. It is not meant that they should be kept "tight." If they are too tight heating is certain to result from it, besides it causes much unnecessary friction. Friction is loss. Power is loss.

Open the steam chest and see if the valve is properly set. If not, set it. Anybody can do it. Set the valve so that when the engine is on the "dead-center" the port will be just open—equal opening on each end. Get one end set then turn the wheel until the engine is brought to the opposite "dead-center" and see if your port is open the same amount that the first port was. If it is not, change it and try the other end again. Try it until both ports open the same when the engine is brought to its proper "dead-center." That is all there is to it. When the engine is on one "dead-center" it should show a certain amount of opening of the ports—when it is on the other center, the same opening of the opposite port should be show.

Open your cylinder and see if there is any loose bolts in it. They will get loose some time. While you have it open notice the clearance between the piston and the cylinder head. Sometimes the brasses wear on the crosshead and are filed, and as new liners are put in the piston is driven back so far that the piston strikes the head —and farewell cylinder head. Look at the piston rod and see if it is properly screwed into the crosshead and the jam nut is tight. If the jam nut gets loose there will be something doing soon.

Examine the guides. See that they are screwed down tight as may be without heating; then look at the crosshead. Now, after you have examined that crosshead carefully go right back and examine it again. Of all the provoking machinery an engineer has to contend with it is a disreputable crosshead. It gives trouble so frequently that when a new man takes charge of an engine that pounds he is very likely to say it is the crosshead without making a thorough examination to see whether that really is the trouble or not.

A crosshead requires as delicate management as a fashionable hostess. Do not try to go too far at first. Drive the pin in a little and watch it. If it does not heat any you may tighten it a little more. If it does heat very much you must loosen again and look somewhere else for the knocking. Or it may be that you need new brasses. If so get them. Do not be penny wise. Look at the brasses on the "wrist" or crank, with equal care. What has been said concerning the crosshead applies with equal force to the crank, or wrist.

Sometimes the eccentric strap becomes loose and makes a slapping sound. One must use extreme care in tightening an eccentric strap. If it is made only a little too tight it will heat and break something in thirty seconds. When it is necessary to tighten the eccentric do it very gradually. After "taking-up" the eccentric have one man stand with his hand on it while the other opens the throttle. If there is no heating in a few minutes there will be none at all.

Now, whatever may be said to the contrary, engine running is as simple as driving a wagon. It is easy. There is very little to it aside from what I have outlined.

The journals are a prolific source of pounding. Set them up gradually. It is not necessary to stop the engine to do it. If the valve is set with more opening at one end than the other that will cause the engine to run in a jerky manner and pound. Insufficient oil will also cause a disagreeable noise sometime. Piston packing may get broke and cause a little trouble and some times the piston rings come loose.

In starting an engine, cocks at each end of the cylinder should be opened wide to allow the water to escape. Start the engine slowly and do not turn on full steam until the water is all out of the cylinder. Starting an engine suddenly without opening the drain cocks might cause what is known as a "water hammer." If you have any curiosity to know how a water hammer works just let some water accumulate in the cylinder, forget to open the cocks, and then turn the steam on suddenly. See that nobody is in front of the cylinder, for a human being might impede its aerial flight slightly.

Now, that is the whole principle of steam engineering—so far as the engine is concerned. The boiler has to be considered, however. Of course if one cares to learn the more complicated engines he must not expect to find it in a magazine. For a simple engine the foregoing is what is needed by a practical man—that and experience.

There are a thousand and one kinds of boilers, all good for some purposes. One may have an old-fashioned flue boiler, a modern porcupine boiler, a water-tube boiler or the common tubular boiler. The horizontal tubular boiler is decidedly the most common, and for most purposes they are the most economical. Some boilers are very complicated. The principle of all is the same.

Most modern boilers have some kind of low-water alarms. Practically all expositions are caused by allowing the water to get low and then injecting cold water on the hot plate. These low water alarms are fusible plugs, which melt when the water gets too low, whistles that blow, etc. They are all good. Some are better. The water glass has a cock at top and bottom. The bottom one admits the water, the top one steam. If the top cock should accidentally, or by design, be partly closed the glass would show a false water level and if there is no low water alarm on the boiler, business will pick up.

Therefore, watch those cocks religiously. See that they are always open and blow them out frequently. They might in time get partly filled up with rust or mud unless the blow-off cock is opened frequently. The safety valve is usually correctly marked. The steam gage is usually reliable—sometimes they are not. The safety valve might get corroded in time and stick. The gauge may be weakened by long use and not register correctly. Lift the valve once in a while. Who knows, it may save a dozen lives. It is worth the effort.

If you do not keep your boiler insured make an inspection yourself frequently. You may not know much about the thing at first, but if you crawl in it a few times you will learn something. You may not learn much—but you will see your own property. Few men ever see the inside of their own boilers. Take a hammer with you. Strike the plates and the flues. You can tell whether they are sound by the ring. That is what a boiler inspector judges by. Of course he takes a candle and examines the pittings, the stays and, in fact, makes a mental note of everything. If there is much corrosion, better have a competent man to examine it.

Do not try to run a boiler three or four weeks at a time without washing it out thoroughly. Have it washed once a week. Do not do it to please your engineer. Do not do it because you want to be charitable. Do it for an investment. If the mud is allowed to accumulate, the boiler plate will be blistered. If it does not go that far, it will at least require more fuel. Try this experiment if you do not believe it pays to have a boiler washed every week: Wash the boiler thoroughly. Measure the fuel required to do a given amount of work the following day. Let the boiler run two weeks before washing again. Now, while it has the mud that has accumulated in two weeks, measure the fuel required to do the same work.

Open the bottom blow-off every day while the steam is on; that helps to keep the boiler clean. When you go to wash the boiler let the steam run down to ten pounds pressure and then blow it out. If there is a higher pressure on and the boiler is emptied the sudden cooling might weaken the boiler. It is generally conceded that ten pounds of pressure is ample. After the boiler is washed thoroughly put in a quart of kerosene. Kerosene has a mechanical action. It prevents scales in a boiler. It is generally approved of by boiler insurance companies. But do not use heavy oils, like black oil or lubricating oil. These oils usually make bad matters worse.

There are lots of boiler compounds on the market. Some waters are so impure that some kind of re-agent, or boiler compound, as they are called, is much needed. If the water is alkaline an acid compound would probably be necessary, but if an excess of the compound were used, the acid would attack the boiler—practically all acids attack iron, and so more mischief would be done. Decidedly a good chemist should always be consulted where a boiler compound is needed. Some makers of boiler compounds employ good chemists and are reliable—some are otherwise.

Kerosene is mild and will not hurt any boiler because its action is purely mechanical and where it will do the work is preferable to other kinds of "remedies" for boiler troubles.

The power of a boiler depends on its heating surface, 15 square feet being considered sufficient to supply steam equal to one horsepower. Therefore, in order to find the horsepower of a boiler get the square feet contained in each one of the flues, multiply by the total number of tubes, then add the number of square feet in the outside surface of the boiler and divide by two. Divide by two because only half the boiler is exposed to the hot gases. The rest is protected by the boiler walls. Divide the whole by 15 and you have the horsepower of your boiler. Now, a boiler that would show 25 horsepower by this rule might be forced to generate power for a fifty-horse power engine, but it would not be economical. The above figuring is based on what might be termed the economic horsepower of the boiler.

All boilers have pumps, injectors, inspirators or some similar device to supply the boiler with water. Pumps are usually put to work and so regulated that it works all day. The pump is regulated so that it pumps water in just as fast as it is used, for that reason it is usually preferred. It also gives less trouble. That is another virtue. But a whole bunch of brickmakers are afflicted with injectors. They stop at the most inconvenient time. They stop apparently without rhyme or reason. The truth is, there is always a reason, though if there is any rhyme in it, it is usually lost sight of in the streak of sulphurous epithets applied to it by the aggravated engineer. If the check valve leaks—and they usually do if everything else is running smooth—that is probably the cause of it. The remedy is to cool the injector. If the feed water is not hot, and the injector is not, it will usually "lift" the water if the pressure is high enough. That is, they will if it stopped originally on account of hot feedwater or hot water. The first thing is to cool the injector and the next thing get a new check valve that will not leak. If the check valve is not leaking it may be that the suction is stopped up. The remedy is obvious, remove the obstruction. Some time it is neither of the troubles mentioned. It may be that there is a grain of sand in the valves of the injector, in which case each of the valves must be taken out and the steam turned on. The steam, of course, will clear the injector. Some time the pipe that leads to the boiler gets stopped up with mud. By opening the bottom blow off that can be blown out in a minute. It may be that the check valve sticks. A light tap with a hammer usually will assist it to "lift." What has been said in the foregoing article is the result of several years' experience of a practical man and it is believed that it will be of more assistance to the average brickmaker than a long lot of algebraic problems to show the method used for calculating the strength of the piston rod on the engine or the rules for figuring the theoretical bursting pressure of boilers. If there is a demand for mathematics I will gladly give rules for figuring everything from the engine bed to the height of a stack. And the rule for stacks might be useful too, for I notice that a great many are built all out of reason and consequently cause much loss of fuel. However, I started out to make the article simple and I will not complicate it with any figures.

Cutting Cost of Machine Repairs

One Point in Plant Economy That is Too Often Overlooked By the Man Behind the Checkbook

THE HEAVY work to which clayworking machinery is destined makes the matter of repairs and replaced parts an item of considerable importance. In fact, it is an item that has an entirely disproportionate bearing on the cost of production, when compared to similar items in other industries. Some idea of this may be gained, when it is noted that, in one plant manufacturing high grade face-brick, where the net cost per M., all overhead included, was $10.48, the repair cost was 44c—or nearly four and two-tenths per cent. This was in a plant, also, where "replacements" were properly charged to equipment, and the item mentioned was a series of distinct repair items.

A real cost accounting system brings things of this kind to light, and the end of cost accounting is to lessen cost. The way to lessen repair cost is to buy repairs as carefully as any other item of expense is bought, with a view to obtaining the best results—i. e., to see that the repaired parts are of a quality that will insure their lasting fully as long as the original parts that had broken down under the stress and strain of manufacture, if not longer.

The Manufacturers Equipment Company, of Dayton, Ohio, has long made a specialty of repairs to clayworking machinery, and, under ordinary conditions, the repair business handled by this concern runs from $7,000 to $10,000 monthly. The growing success of this department of the business is based on the excellence of the material that it supplies, as well as on making a study of the parts of clayworking machines, of all types, to the end that it knows the inherent strength and weakness of each part of each machine in general use in the country.

Clayworkers who make the mistake of trusting local foundries to make their castings for repair parts, can look to the poor wear given by these inferior parts, to a great part of their "repair expense." The cost is, in many cases, quite as much as would be the cost of the same castings in metal that is made to withstand the friction of clay and the extra heavy strain of clayworking machinery. It seems foolish to give repair work to a concern whose only idea of a casting is that it is a certain size and shape, and that being of that size and shape is all that is necessary. This point is illustrated in the letter from the Boone Brick, Tile and Paving Company, of Boone, Iowa, which bears the date of Jan. 21st, 1914. It is as follows:

Manufacturers' Equipment Company,
Dayton, Ohio.

Gentlemen:—We are pleased to report that the "iridium" metal pug-mill knives have given twice the service of the ordinary steel pug-mill knives and that the "iridium" augers are giving from one-and-one-half to two times the service as the ordinary steel augers.

Boone Brick, Tile & Paving Co.

Here two points in the clayworker's machine problem are covered—and by this letter it is shown that the cost of repair items mentioned are cut from 33 1-3 to 50 per cent. It seems reasonable that other clayworkers should see that costs could be lessened by putting their repairs in the hands of men who made a specialty of that line of work, rather than by entrusting them to concerns that were less fully equipped to give value received.

New Book on Belt Conveyors.

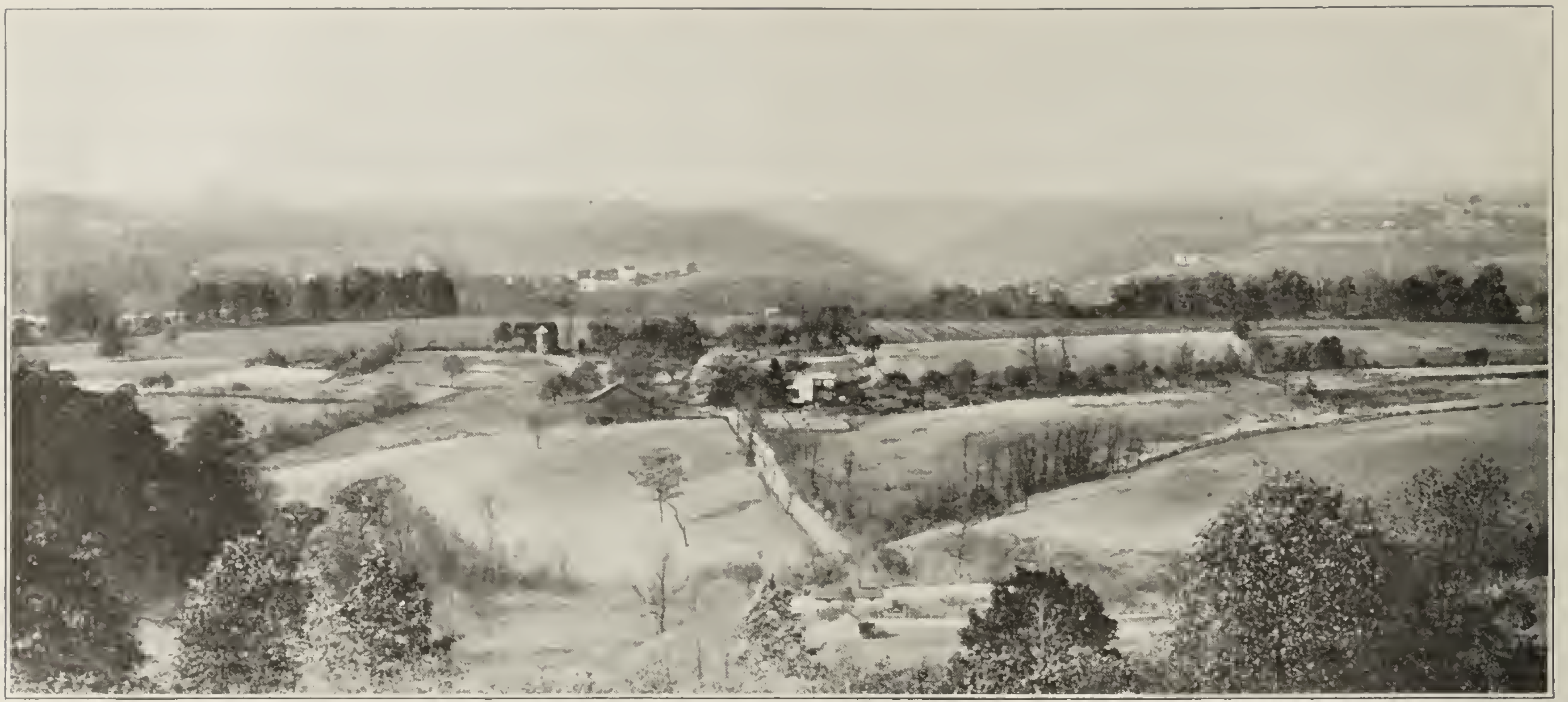
In the recently published "section 3 of the S-A catalog No. 19" a careful description of belt conveyors is given by the Stephens-Adamson Company, of Aurora, Ill., together with formulae of power required, the horsepower of the conveyor and its various capacities. A number of pictures of recent installations are given, showing the method of handling various materials. Every clayworker should write for this catalog and, having received it, read it carefully.

Dodge Buys Greenwald Patterns.

Announcement is made of the purchase by the Dodge Manufacturing Company of all the gear patterns, gear machinery and power machinery patterns of the I. & E. Greenwald Company, Cincinnati, together with all records, drawings and good will of the business. Most of the patterns and all the records are now in Mishawaka, Ind. The addition of the gear patterns to the already extensive list of Dodge gears give the company one of the most complete lines and widest list of gears in the United States.

Canadian Contractor Wants U. S. Brick.

The Bureau of Foreign & Domestic Commerce, Washington, D. C., advises that an American consular office in Canada transmits the name of a Canadian contractor in his district who wants to communicate with manufacturers of brick and to receive prices on this product f. o. b. delivery point. The name and address may be obtained by writing to any one of the offices of the Bureau, either in New York, Chicago, New Orleans or San Francisco, and mentioning the file number, which is 12,792.



The Site of the New Brick Plant of the Salina Coal and Clay Company, near Salina, Penna.

George B. Drennan Heads Salina Coal & Clay Company

Veteran Plant Designer and Machinery Expert to Build Model Brick Works near Pittsburgh

NO BETTER augury for the brilliant future of the newly formed Salina Coal and Clay Company, of Greensburg, Pa., can be found, that shows itself in the selection of three men whose names are synonymous with experience and success in the clayworking field, to direct its initial planning, the building of its plant and, when that is finished, to operate it.

George B. Drennan, for years secretary and treasurer of the J. D. Fate Company, of Plymouth, Ohio, an expert in plant designing and plant economy, has been elected to the presidency of the new company.

Harold Copping, of Kankakee, Ill., has been made superintendent and his brother, Basil Copping, master mechanic. Neither of these men need any introduction to the clayworking world.

This triumvirate will charge for the company during the period of construction and when the plant is completed, will take entire charge of its operation. It is proposed to construct the best brickmaking plant that money and skill can produce.

GEORGE B. DRENNAN

Mr. Drennan has gone over the property and has declared the location and material at hand to be ideal. The shale has every appearance of being a splendid material for building and paving brick. Large beds of spongy blue clay are in sight, that Mr. Drennan believes will burn out to a vitreous light gray or white brick, similar to those that have made the Kittanning district famous.

The fact that the plant taps the same vein of clay that is being used by the Kier Fire Brick Company, makes the production of a high grade fire brick sure. The company mentioned has operated with this clay for more than forty years, and sells its product to such important users as the Jones & Laughlin Steel Company and the American Steel & Wire Company. The Kier Company, as has been stated, have operated for more than forty years, and upon 250 acres. The Salina Coal & Clay Company owns 1,158 acres, underlaid with the same clay.

In the illustration at the top of this page, a portion of the company's property is shown, the picture being taken from the brow at a high hill, which overlooks the site selected for the works. The town of Salina, Pa., lies one mile from the point where the roads intersect, in the foreground directly in the line of the road that is so clearly defined. From the same corner in the foreground, the town of Avonmore, Pa., lies one and a half miles to the right.

The shaft of the coal mine will be sunk about twenty feet back of the two trees shown in the open space in the foreground. The switch connecting the works with the Conemaugh Division of the P. R. R. will be laid along the bank of the creek that is seen flowing around the hill at the left of the illustration. The coal and clay works will be arranged in a diagonal direction toward the left and back of the picture, in the open fields shown.

The economies that can be instituted here, for the handling of material, the access to fuel, the exceptional railroad facilities, the nearness of big consuming markets, the capital at hand and the determination to spare nothing in the way of modern equipment make the success of this enterprise a moral certainty. When to this is added the experience of men like George B. Drennan and the Copping brothers, assurance is made doubly sure, and the returns on the investment almost ready to bank.

Cincinnati's Paving Experience Proves the Economy of Brick

According to the report of the Engineering Department of Cincinnati, Ohio, for the year ending Dec. 31, 1911 (the latest figures available) the total length of avenues, streets and alleys in the city is approximately 920 miles, of which approximately 645 miles may be classed as improved. Of the improved streets, 14.49 miles were improved during 1911 and 15.03 during 1910. In the table that follows, the distribution of this mileage, as regards the various kinds of pavement used, is shown in miles.

Kind of Pavement.	Dec. 31, 1910.	Dec. 31, 1911.	Change in 1911 In-crease.	De-crease.
Graveled	5.50	5.50	0.00	0.00
Rock asphalt	1.00	1.00	0.00	0.00
Macadamized roads	31.65	79.75	48.10	0.00
Bituminous macadam	7.38	7.38	0.00	0.00
Limestone avenues, streets and alleys	7.85	7.85	0.00	0.00
Asphalt avenues, streets and alleys	39.10	38.00	0.00	0.00
Brick avenues, streets and alleys	75.28	76.68	1.40	0.00
Granite avenues, streets and alleys	63.82	68.82	5.00	0.00
Bowldered avenues, streets and alleys	63.48	63.55	0.07	0.00
Macadamized avenues, streets and alleys	193.34	278.94	85.60	0.00
Bitulithic avenues and streets	5.63	6.79	1.16	0.00
Wood block avenues and streets	7.11	10.55	3.44	0.00
Granitoid avenues and streets	.09	.09	0.00	0.00
Total	501.25	644.90	144.77	0.00

The Cincinnati Bureau of Municipal Research, in February, 1912, issued "Paving Report No. 6" under the title "The Selection of Pavements" and this report states that the factors governing the selection of the pavement for any given street are—first; those which may be called "general"—as smoothness, slipperiness, sanitary qualities, etc., and—second; economy, in which are involved first cost, durability and cost of repairs.

The conditions defined as "general" are easy to determine, while the conditions of economy are more difficult. The report of the Cincinnati Bureau states that the most economical pavement for use under a general set of specifications is that which will show the lowest average annual cost during its life. Quoting from the report—"The average annual cost is that amount of money which, if contributed annually, will, under existing conditions, keep the street perpetually paved and repaired."

This amount is made up of three principal factors,—the average annual cost of repairs, the interest on the original cost of the pavement and the annual charge on account of sinking fund—the fund which, if set aside and invested each year, will suffice to have completely paid for the pavement when the pavement is worn out. The selection of an economical pavement for a given street, taking into account both first cost and average annual cost, requires that certain exact data, especially on the latter, be available. Such data, as is pointed out in the report, are usually meagre and fragmentary, but in spite of this, considerable light may be shed upon the problem by the use of even the approximate data available.

The report then goes on to determine the average annual cost of different pavements in Cincinnati by means of such data as are available. The first factor—interest—must, of course, be determined from the average first costs of different kinds of pavement, which for Cincinnati, according to the records of the past four years, are shown in the following table:

Kind of pavement.	Minimum.	Maximum.	Approximate average
Granite	$3.25	$4.69	$3.70
Wood block	2.60	3.93	3.45
Bitulithic	2.14	3.22	2.65
Asphalt	1.81	2.62	2.30
Brick	1.86	2.50	2.25
Granitoid	1.54	2.50	2.10
Macadam	.66	1.30	.95
Bowlder	1.50	2.15	1.75

The remainder of the discussion of these three factors, as presented in the report, is as follows:

The average cost of repairs for individual pavements during their life is not locally available. However, we know the gross amount of money expended annually for several years past on each kind of pavement. From this and such available records as exist of the amount of each kind of pavement in use we can obtain a figure for the average cost of local repairs per square yard per year.

Kind of pavement.	Gross expeditures for repairs* 1908.	1909.	1910.	Average cost per sq. yd. per year.
Asphalt	$ 62,994.00	$ 46,000.00	$ 48,271.44	$.073
Granite	27,995.00	30,443.00	34,213.00	.026
Brick	14,005.00	22,797.00	10,016.00	.012
Bowlder	30,640.00	31,861.04	36,347.12	.033
Macadam	258,930.40	332,511.01	328,232.34	.076

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*Cleveland and Columbus, with practically no macadam, spent annually on street repairs during 1908 to 1910, inclusive, an average of $129,000 and $39,550, respectively, as compared with Cincinnati's average for the same period of $441,300.

The gross expenditures in the first three columns are taken from the annual reports of the Street Repair Department. In order to determine the last column, the most recent United States Census Report was used as a basis for the amount of each kind of pavement in use. No allowance is made for streets under guarantee. Particular attention is called to the high repair cost of macadam, especially as compared with brick.

The annual cost of repairs to a Portland cement concrete foundation is assumed to be negligible.

In determining the annual payment on account of the sinking fund, the two factors are the initial cost and the durability or length of life. The former has already been given. For the latter, the figure which is desired for each kind of surfacing should represent the average length of life under the average conditions to which it has been subjected in this city. Obviously this figure is not susceptible of exact determination. We believe, however, that the figures given below are fair approximations.

	Years.
Granite	25
Wood block	(?)
Bitulithic	(?)
Asphalt	15
Brick	15
Bowlder	25
Macadam	8

The life of the Portland cement concrete foundation is assumed to be 50 years. A variation from this figure of several years will make no material difference.

It is pointed out in the report that this table shows that the respective costs of granite, asphalt and macadam, laid under the actual conditions that have obtained in Cincinnati, are not far apart, while the cost of brick pavement is considerably lower. Bowlder is not considered, being regarded as obsolete. It is also pointed out that the lack of data on the life and cost of repairs on wood block and bitulithic pavement makes figures for those items uncertain.

The most significant facts brought out by the figures in the table are, according to the report, the relatively high cost of macadam and the relatively low cost of brick, the former being nearly 50 per cent greater than the latter. It is pointed out, furthermore, that in comparing the annual costs given it must be remembered that the different kinds of pavements are not generally subjected to the same traffic conditions, macadam being normally used on streets of light traffic and yet costing about the same as granite which is used on streets carrying the heaviest traffic. Therefore, if the macadam were to be replaced with a more permanent pavement the comparative costliness of the former would be even more marked.

	Cincinnati.	Cleveland.	Toledo.	Columbus.
Stone Block	14.2	36.4	14.0	7.4
Wood Block	....	0.4	4.2	....
Brick	14.0	55.1	55.8	67.0
Asphalt or Asphalt Block	8.6	7.5	15.0	18.4
Bowlder	12.0	....	1.5	1.8
Macadam	48.4	0.4	8.3	5.4
Bituminous Macadam	....	0.2	1.2	....
Gravel	1.1	....	....	....
All Others	1.7	....	....	....

The report then takes up the relative proportions of different kinds of pavements in use in Cincinnati, and also, for the sake of comparison, in three other large cities in Ohio. The percentage of each kind of pavement to the total area in these four cities, in 1907, is shown in the table that concludes this article.

This table shows, conclusively, that the cost of paving with brick is very much lower than that of paving with any other acceptable material. The tables that preceded it show that Cincinnati's street paving department has favored macadam, a much less economical paving material than brick, to the detriment of the city's interest.

The report of the Bureau of Municipal Research points to the fact that in other cities, the reverse has been the practice, and that, had Cincinnati given brick its due amount of consideration, the city would have been saved more than $100,000 per year. This is premised on the assumption that, had half of the surfacing that has been done in macadam been done in brick, the annual saving would have been reasonably near the amount quoted.

Despite the relative economy of brick paving, it is pointed out that the tendency toward macadam has been but slightly altered during the period that extended from 1908 to August 25, 1911, although in 1909 the amount of brick paving contracted for was almost double that of macadam. This was changed in 1910 and little improvement shown in 1911. It must be borne in mind that Cincinnati is located in a section of the country that produces paving brick in quantities, and the lack of consideration given it can only be ascribed to blindness on the part of the city's authorities or worse. The following tables show the amount of each kind of pavement contracted for in the period named, in square yards, and the percentage of each kind:

	1908.	1909.	1910.	1911 to August 25.
Granite	49,223	160,834	149.173	49.520
Wood Block	100,985	48,537†	81,870	23,390
Bitulithic	....	....	31,000	2,100
Asphalt	18,870*	10,765	10,205	1,220
Brick	30,477	75,665	20,693	22,082
Granitoid	....	....	1,775	......
Macadam	41,460	35,270	26,876	25,091
Bowlder	5,795	7,343	700	......

*Also resurfacing 90,736 yards.
†Also 50,000 yards enjoined.

Granite	39.7 per cent
Wood Block	24.7 per cent
Bitulithic	3.2 per cent
Asphalt	4.0 per cent
Brick	14.5 per cent
Granitoid	.... per cent
Macadam	12.5 per cent
Bowlder	1.4 per cent

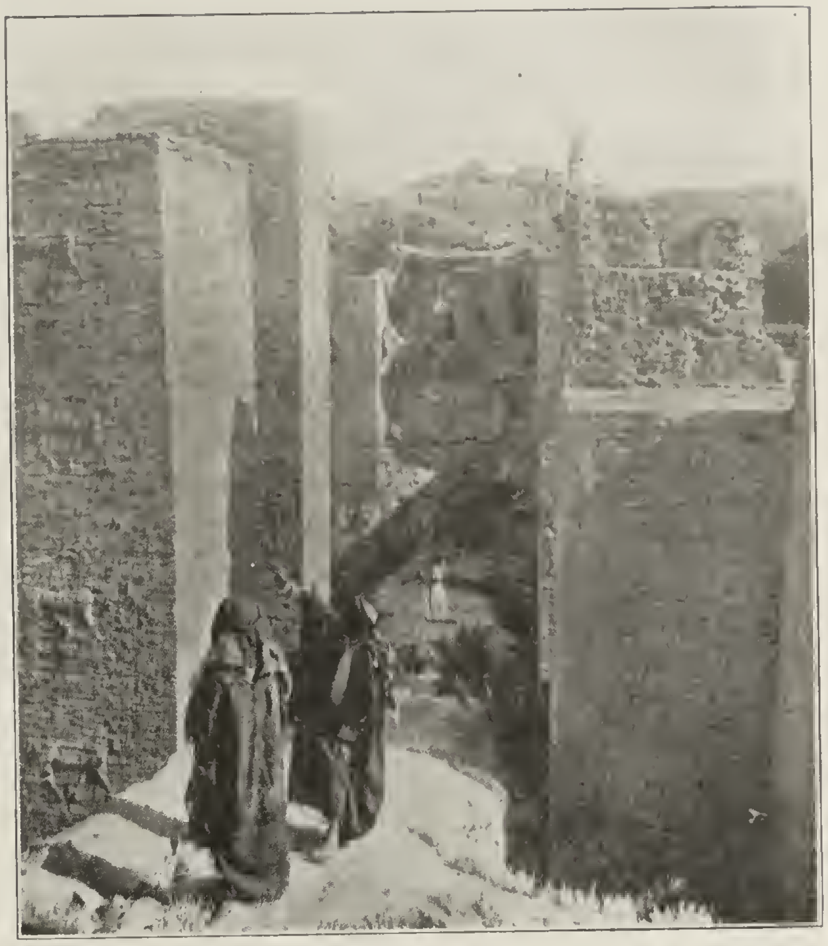
The report also states that while the paving work done recently has included a smaller proportion of macadam than formerly, expensive pavements are still used.

Comparative Economic Value of Various Forms of Pavement

	Granite.	Wood blk.	Bit.	Asphalt.	Brick.	Bowlder.	Macad.
First cost of surfacing	$2.70	$2.45	$1.65	$1.30	$1.25	$1.75	$0.95
Assumed life	25 yrs.	(?)	(?)	15 yrs.	15 yrs.	25 yrs.	8 yrs.
Average Annual Cost of Surfacing:							
Interest at 4 per cent on cost of surfacing	0.108	0.098	0.066	0.052	0.050	0.070	0.038
Average annual cost of repairs	0.026	(?)	(?)	0.073	0.012	0.033	0.076
Annual charge for sinking fund	0.063	(?)	(?)	0.063	0.060	0.041	0.100
Oiling or watering	.....	.....	.....	.....	.....	.....	0.040
Total, surfacing	0.197	.....	.....	0.188	0.122	.....	.....
Average annual cost of foundation	0.046	0.046	0.046	0.046	0.046	.....	.....
Total average annual cost per sq. yd	0.242	(?)	(?)	0.234	0.168	0.144	0.254

The Chaldean as a Clayworker

He Built His Cities and Paved His Streets With Brick and Understood the Art of Burning Enameled Brick and Tile



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Triumphal Gateway of the Goddess Ishtar and the Processional Road of the God Marduk, Uncovered by Recent Excavations in the Ancient City of Babylon. The Royal City Mound of Nebuchadnezzar is Shown in the Background.

ANCIENT CHALDEA lay in the valleys of the Tigris and Euphrates rivers, in a country that is shown on modern maps as Mesopotamia. This, in turn, is a part of the Turkish empire in Asia and lies about 700 miles due east of the Suez canal. The site of the city of Babylon is about 200 miles west of the boundary line between Asiatic Turkey and Persia, being about 70 miles south of the city of Bagdad, famed in song and story, and particularly memorable as the scene of many of the Arabian Nights entertainments.

This valley can well be called the cradle of civilized man. No authentic history has been brought to light of an earlier civilization—no record of an earlier abode of mankind. Brick that are unmistakably from a period close to 4,500 years before the beginning of the Christian era, have been found at Abu Habba, a small ruin in central Chaldea and at Fara, a few miles further south. How long before that time civilization was in flower, is hard to determine, for centuries unnumbered must have passed in the transition of primitive man to the scholarly, city-planning Chaldean of a period much earlier than (according to Biblical chronology) the Creator said "Let there be Light."

In the burned clay tablets unearthed at Fara, it was found that at that point existed the ancient city of Shuripak, the scene, according to the Gilgamish epic, of the flood. This, however, is comparatively modern history, as is the story of Babylon, a city which was built upon the ruins of an older city, but, in itself, infinitely more modern than the cities to the south. In Assyrian records, we find that Sinacherib, who ruled that country from 705 to 681 B. C., boasts that he destroyed Babylon, scraping even its foundations into the river. No trace of that older Babylon has been found, so the doughty Assyrian must have made a thoroughly workmanlike job of his razing.

So it is with this comparatively new city that this story will, in part, treat. Unlike most Chaldean cities, the site of Babylon has never been quite forgotten. Travelers of every age have described it; nearly a century ago, large square brick, bearing cuniform inscriptions with the name of Nebuchadnezzar, were taken to the British museum.

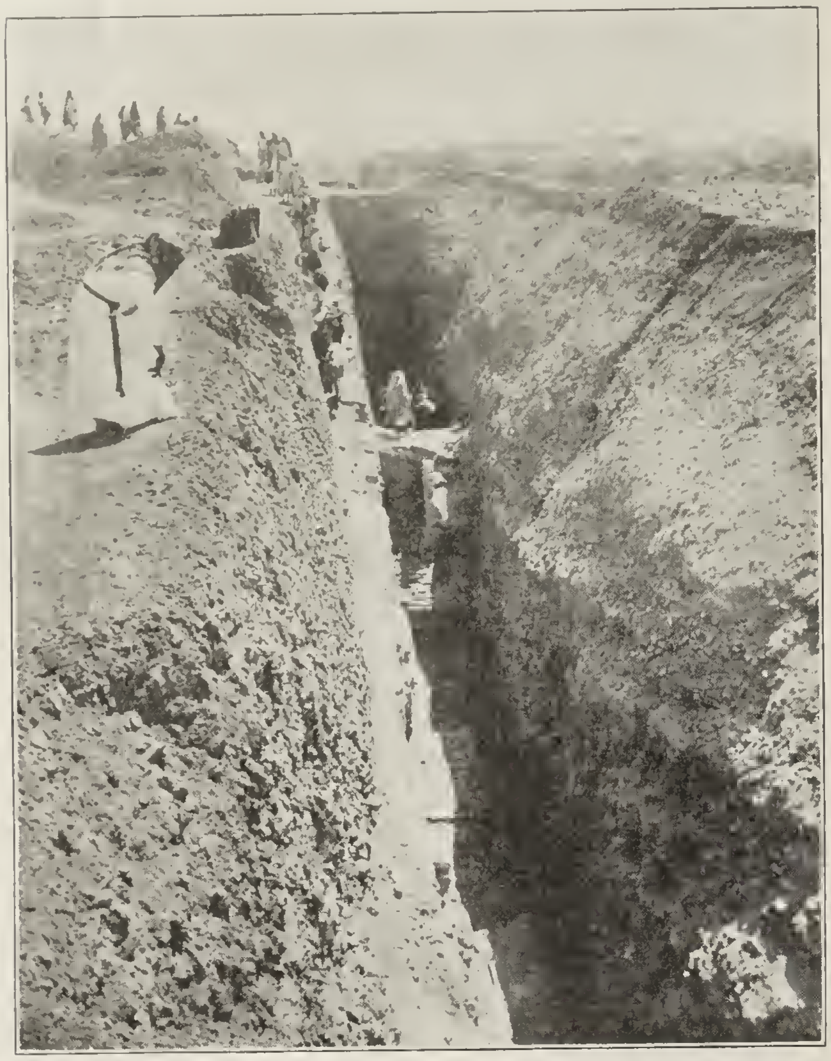
The ruins of Babylon consist of three large, and several small mounds. Surrounding them is a ridge of dirt, reaching in places to a considerable height, and representing the city walls. Herodotus says the walls were 335 feet high and 85 feet wide. Other writers claim they were from 42 to 56 miles in circuit and that they were surmounted with 250 towers and pierced with 100 gateways—and that the gates were of bronze.

In excavating these mounds, the *Deutsche Orientgesellschaft* followed well-laid plans. In one of the illustrations that accompany this article, they are shown, digging a cut forty feet deep and several hundred feet long, in a straight line, down to the paved streets and foundations of the palaces in the royal city of Nebuchadnezzar. This is but a preliminary step in the enormous task of excavating the entire site of that part of the city which was occupied by the famous Babylonian king. Of the 600 men employed in the excavating of the city, 100 are at work in this cut, the men below loosening the dirt with picks and shovels, placing it in small, round baskets for the others to carry up and empty into dumping cars that are on rails.

Of the three larger mounds, Babil, the one to the north, still retains its ancient name. Square in shape, it rises to a height of more than 100 feet. It is believed that an ancient structure, which gave rise to the Biblical story of the "Tower of Babel" stood there. At the base, huge arches of passageways have been found, one a quarter of a mile long and leading from the Etemenanki (the "Tower of Babel" already alluded to) to the temple of Esagila, an illustration of which is shown in this article. This is the most important of the Babylonian sanctuaries that has, as yet, been brought to light. The excavation is more than forty feet in depth and some idea of its area is gained by comparison with the human figures that are in the illustration. The two walls in the center are the entrance to the passageway that led to the pyramid or tower that was, beyond all doubt, the basis of the Old Testament story of the lofty building that the "Assyrians" attempted to build, in order that they might reach the sky.

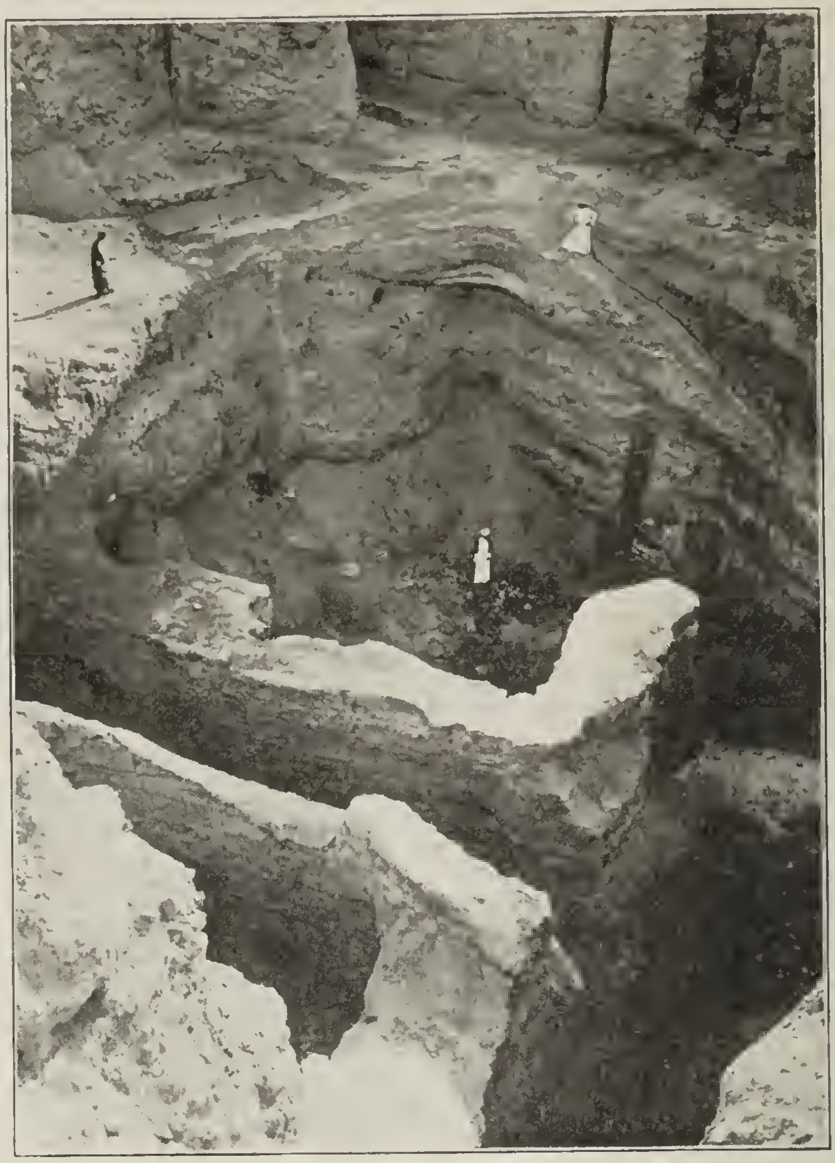
And here, again, comes the thought that these people of by-gone centuries were not only skilled, but venturesome, and this quality of industrial bravery is written into the history of nations that came after them, touched and garnished, as it were, by clerical writers, who emphasized the "strange tongues" that were supposed to have stopped the work, while the wonder of the work itself, and of its attempt, was allowed to fade into insignificance beside a fancied affront to Deity.

There was a sacred street in Babylon, leading from the palace of Nebuchadnezzar to the temple of Esagila, along which images of the Babylonian gods were carried in processions, according to religious rites. The gateway known as the Ishtar gate, leading to this street, is most imposing, and gives us a good picture of how Babylon must have looked. Whatever its original height may have been, it still stands forty feet above the street, its six square towers, built of burned brick, and measuring twelve feet, each way, being adorned with beautiful reliefs of bulls and lions and dragons and animals of fantastic shapes. These reliefs are of brick, glazed blue and yellow and white, and the color is as fresh, today, as it was when the gates were built, more than 2,000 years ago. Each brick of the relief was shaped and glazed separately and so accurately that, when it was placed in the wall, it formed a part of a perfect picture. The art could scarcely be surpassed.



(Copyright by Underwood & Underwood)
Workmen Digging a Cut 40 feet Deep and Several Hundred feet Long, Down to the Paved Streets and Foundations of Palaces of the Royal City of Nebuchadnezzar.

The illustration gives but a faint idea of the perfection of this ancient brickwork, but it can be said, without question, that the great Gate of Ishtar is a memorial to burned clay without a rival anywhere upon the earth's surface. If, in the course of time, some other burned clay work comes to light, beside which these wonderful gates will pale, it will doubtless be through further excavations, made not far from the place where the Ishtar gates rear their magnificent monuments to ancient craftsmanship in the blazing sun and sand-laden wind of the valley of the Euphrates.



(Copyright by Underwood & Underwood)
The Temple of Esogila. The Two Walls in the Center Are Those of the Entrance to the Passage a Quarter of a Mile Long, Which Connected the Steep Pyramid of Etemenankl, Known in the Bible as the Tower of Babel, with the Temple.

There is, however, a lapse in the world's history, between the building of this wonderful city of Babylon and the building of the city upon whose leveled ruins it was built. Sinechaerib doubtless razed the old city, but even his army could not, and did not "sweep into the waters" the ruins of other cities contemporaneous with the earlier Babylon. And in those ruins of the earlier day we find the record of the Chaldeans, upon whose customs, faith and works, the twentieth century clayworker has built his secret society of clay-craftsmen, the Ancient Order of Chaldeans.

For his names, his secret words and symbols, his symbolical trial and triumph over cowardice, cunning and crime, he has gone to a people who ceased to be but a memory when, according to Hebrew tradition, Adam dolve and Eve span. He has gone to a land in which early historians claim the human race was cradled—to the site of the Garden of Eden. And he found, in this nation that came at history's dawning, the clayworker a much-honored citizen, holding his place with the learned men who gave the world a system of accounting, a code of medicine, of astronomers, "magicians", priests and rulers of men. He represented the highest thought of that highly civilized race—the rearing of what they believed to be imperishable structures.

What great calamity visited this people, is but a conjecture. The ancient cities of Nippur and Fara seem to have been engulfed, as it were, by a tidal wave and the tides of the sea may have brought in the sand that engulfed them. Tribal wars may have decimated the ancient builders, as they fled from some volcanic upheaval, but their works remain to tell of what they wrought and that this work, while not, as they fondly hoped, imperishable, was in imperishable material. At Fara, a large, arched sewer was built beneath the city, built of "loaf-shaped" brick, not unlike the segment sewer blocks in use today. In the illustration that closes this article, tombs are shown, round roofed and built of brick. Each tomb was large enough to hold several terra-cotta sarcophaguses. The bones in these are still preserved, although entombed more than 2,500 years.

So, as brick must be made before it is laid, the art of brickmaking came before the craft of brick-masonry. History tells us that the masons who laid the stone in King Solomon's temple were made free and exempt from taxes upon the completion of that great work. When modern Freemasonry adopted its title of "Free and Accepted Masons," it is said that the word "accepted" was but a misquotation of the historic "exempt"—the exemption given the workmen in Jerusalem. So the founders of that order went back to the earliest history then available. for the legend upon which their ritual was built .

Now, it appears, this "earliest history" was, in the light of recent discoveries, painfully modern. The Ancient Order of Chaldeans, the one-year old secret order of clayworkers, has gone the Masons one better—by several centuries—choosing a people whose antiquity is storied in burned clay tablets, burned clay brick, enameled tile—clay products that have resisted fire, flood and time—since time has a record in the minds of men.

(Copyright by Underwood & Underwood)

Lucien R. Blackmer Dies of Heart Disease

Lucian R. Blackmer, president of the Blackmer & Post Pipe Company, died March 28, at his home in Webster Groves, Mo., of heart disease. He was 66 years old and was widely known as a clayworker.

Blackmer began his business career at the age of 18 as a clerk in a country store at Barnard, Vt., his birthplace. He went to St. Louis three years later and accepted a position with the St. Louis Stoneware Company, first as bookkeeper and later as secretary and treasurer. In 1877 he became sales agent for an East Alton, Ill., sewer pipe manufacturer, and in 1878, with L. W. Post, founded the Blackmer & Post Pipe Company, which was incorporated in 1892. It manufactures vitrified clay sewer pipe in large sizes.

LUCIAN R. BLACKMER.

Mr. Blackmer's personality was most pleasing. He had the happy faculty of remembering faces and recalling names of men he had met but casually. He was a staunch friend, an earnest supporter of civic and national movements that made for the uplift of his fellow men. He was progressive without being revolutionary, constructive in his business methods, fair with his competitors and true to his spoken promise. His energy helped to build one of St. Louis' greatest enterprises, the burned clay plant that carried his name.

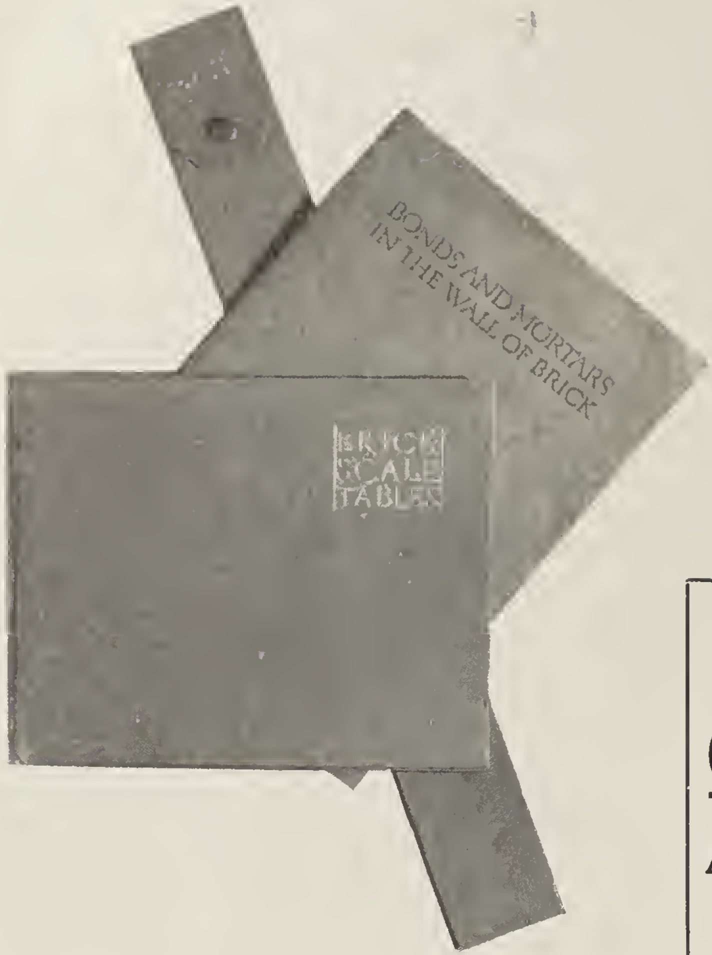
His interests were many and varied. He was a director in the Webster Groves Trust Company, and, in connection with the owners of the old Suburban street car line and others, including Charles H. Turner, he promoted the Meramec Highlands line, through Maplewood, Old Orchard and Webster Groves to Meramec Highlands. The Bristol Building in Webster Groves, the first pretentious business block, with a large auditorium, ever attempted there, and the laying out and financing of Webster Park subdivision, also were made possible largely through his enterprise.

He was one of the first residents of Webster Groves, having moved to that town in 1883. His favorite recreation was fishing, and he was a member of the Mercantile, Algonquin and Maine hunting and fishing clubs.

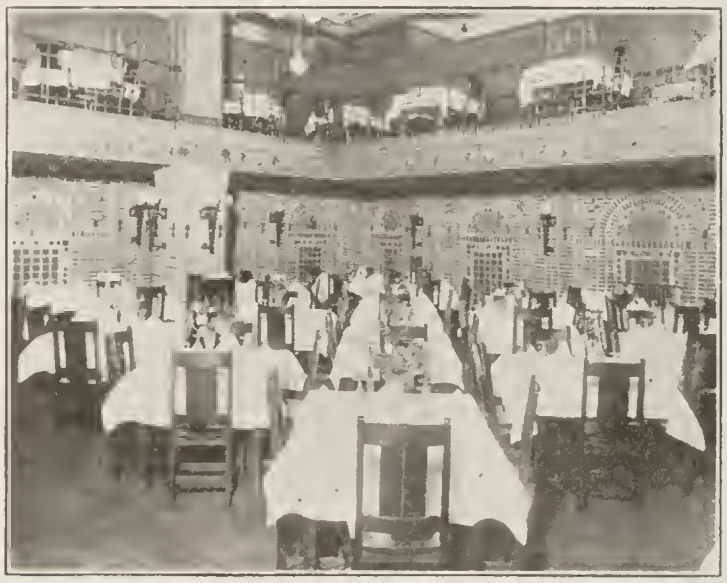
He is survived by his widow and the following children, who reside in Webster Groves: Lucian G., Albert E., Mrs. C. H. Miller, Edward L., Percy R., and Mrs. V. E. Taylor. His loss will be felt deeply, not only by those with whom he came into direct contact, but by those who came within the sphere of his influence, which was invariably exerted along lines of advanced thought in claycraft—organization, solidarity, reciprocity and mutual helpfulness. He was a believer in advertising, and in making a product that would live up to advertised promises and in a uniform price on a uniform quality.

In the Limelight

Some Current Happenings That Have an Interest for the Clayworker



Above is shown the new "brick scales" and accompanying booklets, issued by the Hydraulic-Press Brick Company. The scales are fifteen in number and are printed on thin cardboard, that can be slipped under the tracing paper or cloth on the architect's board. They give the heights and widths of the various sizes of standard brick, with the many different sizes of joints. These scales are contained in the long, cloth covered box shown, and are accompanied by a book which shows what scales to use, and how to use them. The other book is a splendid exposition of the various bonds and patterns in which brickwork may be done.



One of the developments of burned clay in the Far West. A brick-lined dining room in the Germania restaurant at Seattle, Wash. Here brick and tile are worked into beautiful patterns and give an effect of soft blending color that is in harmony with the spirit of the room. This is one of the best examples of "jugendstyle" in America.

PHOTO CONTEST

A Prize of $1

will be given with each issue of "Brick and Clay Record" to the contributor who sends the best photograph for use on this page.

Other photos that are available will be used without remuneration to the contestant, but due credit will be given in every instance.

CONDITIONS

Photographs must be of current happenings and of particular interest to clayworkers.

They must be accompanied by a written description, which must be on a separate sheet—not written on the back of the print.

Black, shiny prints reproduce better than matt finish, and this will be given consideration in making awards.

ADDRESS

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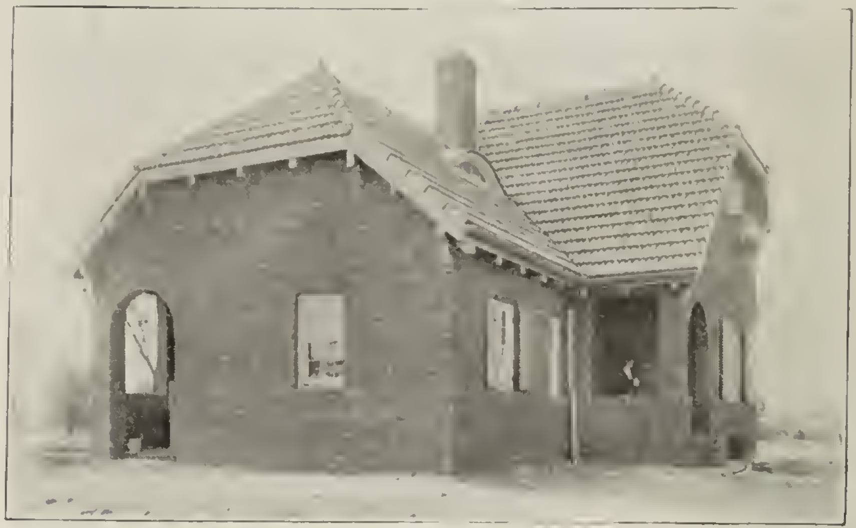
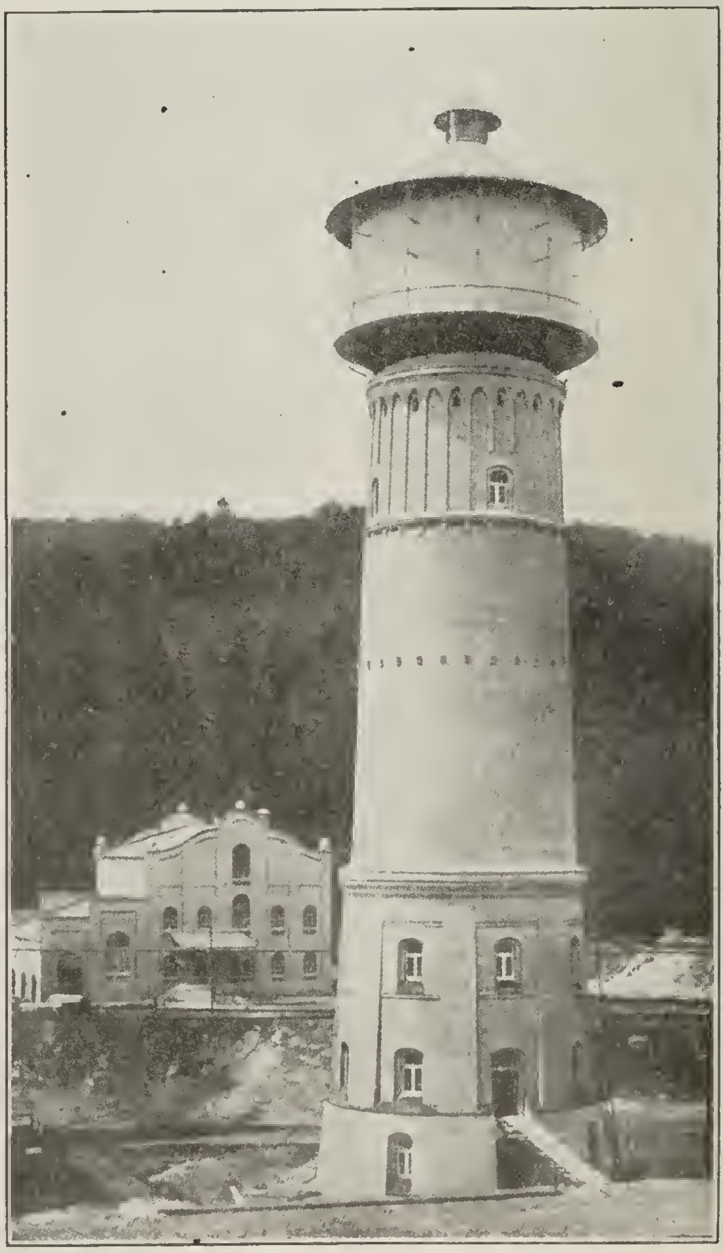


Visitors to the first Clay Show, held in Chicago in 1912, will remember the red, rough-surfaced brick bungalow that was given away as a prize. Here is proof positive that the prize was bona-fide, for this is the bungalow, built and occupied, at 72nd Street and Yates Avenue, Chicago.



A water-tower built of slag brick. The tower is part of an Iron Works in Belgium, and the brick are made from slag which otherwise would be a waste product. The slag is granulated by allowing it to fall into water, immediately on issuing from the furnaces. The brick are light gray in color, impervious and non-staining.

Running Expenses—How to Charge Them

A Few Remarks on This Important Factor in the Successful Conduct of a Clay-Working Plant, With Some Practical Suggestions

By John Grayar

Where and how do you charge your "running expenses"? Many clayworkers, while keeping accurate data on manufacturing costs, and striving to keep them at a minimum, ignore the necessity of reducing all costs to a point where further reduction is impossible. The same idea of segregation, applied to "running expenses" as is given labor and fuel costs, might show a way to larger profits.

COST of production is made up of three factors—labor, material and running expenses. Refer to your payroll and you readily ascertain what the item of cost is for the first factor. Consult your record of purchases and you just as easily determine the cost item of the second factor. With the third factor, however, it is different, as nine out of every ten clayworkers are paying their running expenses—which include interest on building investment, rent if any, light, heat, power, insurance and innumerable other elusive items—not out of their business, you understand, but out of their own pockets.

Yet selling prices are based on these three factors, one of which is inaccurate nine times out of ten!

Fifteen years it takes to make a business man, according to the general manager of a great industry. Five years to learn his cost of production—five more to learn his cost to run—and the final five years to recognize profit and stand up for it.

Business itself has developed that way. Ten years ago the average clay product manufacturer guessed at his production cost just as he now gambles on his cost to operate.

Most clay manufacturers are sure today of their production cost. They have the comparative costs of material at various centers. They know their own direct labor costs—their hour costs—the output per dollar. They may even have comparative costs of other clay plants and even of other industries.

Plumbers, contractors, laundrymen and men in various trades whose principal cost item is one of labor, have exact records of their main items of basic cost. The merchant knows his invoice cost, his freights, his hire.

Only now and then, however, do you see a business poking its head above the dead level because its pilot knows not only cost to make but also cost to run—because he knows what must be charged for goods or services in order to make a profit and stands out for it.

Ask the furniture manufacturer the price of lumber; he can tell you to the cent. Ask him his production cost—material and direct labor—on certain lines; he will give it to you carried out to the second decimal. Ask the printer what his pay roll and ink bills were for the month before; he can tell you to the odd pennies. Ask the retailer what he paid for this or that article on his shelf; he knows to the fraction of a cent.

But ask any of these men the total of his running expenses, the items into which his cost of doing business is divided and their amounts; ask him what proportion of his gross profit is actually net—and you will wait for an answer. He does not know his cost of doing business.

And the clay product manufacturer is just as much of an offender as any of these!

The purchasing agent of a big city firm was placing a booklet job. He sent out specifications to a half dozen printers.

"Why do you bother getting bids on a little hundred-dollar job like this," he was asked. "You have bought printing for years and you must know the kind of work different printers do and their prices."

"There is no knowing in the printing business," he answered. "I send out specifications on every little piece of work—and then give the job to the fellow who makes the biggest mistake."

This buyer took advantage of a condition created by the people he was buying from, a condition which they realized and might have remedied. On this particular booklet the bids ran from $72 to $118. But their makers did not really figure—they guessed. And the buyer profited by their mistakes—as the buyer always does; having the chance and the power to take the lowest bid.

This blind little lottery is going on in business every day. The clay worker, manufacturer who makes chairs, the printer who sets type, the wholesaler who distributes 10,000 articles, the retailer who sells across the counter—business after business is operating its own lottery, and milking itself, not the public—taking from its net profit because it guesses at expense.

Cost to run is a legitimate expense of business—as much so as the lumber in a chair, the starch in a collar, the wage of the clerk who fits your shoe. It should be included in the selling price. The man who doesn't know all his items of expense, who fails to record or guesses at some of them, is not charging them to customers—he is paying them out of his own pocket.

It is true that no factor in costs offers such an open invitation to lose items as does running expense. There is small likelihood of basic cost getting away. Material and labor costs are apparent and recognized, and selling price is predicated on this prime cost. But the cost to run a business—its cost of living, disregarding the material and direct labor which are re-sold to make income—is vague. Its undefined character in the mind of the average man is apparent in its varying terminology, which shows that the items included are not in themselves clear. One business designates it as "burden;" another as "general expenses." One man calls it "non-productive costs;" the majority colloquially refer to it as "overhead."

The reason for this vagueness is lack of knowledge. The causes behind that are many. Sometimes the accounting system is at fault—not the bookkeeping, the way records are kept, but the judgment determining how expense items should be charged. In other cases the manager, realizing that his expenses are high, decides it is wiser not to bother with accounts, but to give all his time to increasing business—in the hope of catching up with expense and lightening the burden. Or, not bothering to figure his own costs, he adopts a competitor's as his own.

Recognizing the danger of not knowing costs, business men and business associations all over the country have worked out methods for finding and tagging their expense items.

The American Face Brick Manufacturers' Association is working out a cost system. Several of the other associations—chiefly some of the state organizations, are doing likewise. It is a good sign, of course, but so far nothing definite has been accomplished.

The basic principle of a good cost system is simple: get in all the items. The other essential is to charge all expenditures in the right place.

But merely knowing expenses is not enough; more important is the work of adjusting and cutting the items which this knowledge makes possible. Cost knowledge, in fact, has four angles: knowing how to figure expense—what the items actually are—what they should be—how to cut them.

The Cost Educational Association, in its work with the implement dealers, has worked out some ideas and methods of cost figuring. They are as follows:

First—Figure interest on the net amount of your total investment at the beginning of your business year exclusive of real estate.

Second—Figure rental on all real estate or buildings owned by you and used in your business at a rate equal to what it would cost if rented from others.

Third—Figure in addition to what you pay for clerk hire, canvassers, extra labor, and so on, an amount equal to what your services would be worth to others. Treat in like manner the services of any member of your family employed in the business but not on the regular payroll.

Fourth—Figure depreciation on all goods carried over for which you may have to take a reduced price because of change in style, damage or any other cause.

Fifth—Figure depreciation on buildings, tools, fixtures or anything else suffering from age, obsolescence, wear and tear. This may be more or less than the ten per cent that many business men use.

Sixth—Figure all fixed expense, such as interest, taxes, insurance, water, lights, fuel, and so on, properly prorated for the period involved.

Seventh—Figure all incidental expense, such as drayage, postage, office supplies, livery or expense of horses and wagons, telegrams and telephones.

Eighth—Figure advertising expense, including all money spent for publicity and entertainment of customers in promoting sales.

Ninth—Figure amounts given to charities or like causes (not for personal account) and subscriptions or assessments paid.

Tenth—Figure losses of every character including goods stolen or sent out and not charged, allowances made customers, bad debts, and so on. Figure collection expense.

Eleventh—Figure any other expense not enumerated above.

Twelfth—When you have ascertained the sum of all the foregoing items, prove it by your books, and you will have your total expense for the year. Divide this total by the total of your sales to get the per cent which it has cost you to do business.

Thirteenth—Deduct this percentage from the price of any article you have sold, then substract from the remainder what it cost you (invoice price and freight) and the result will show your net profit or loss on the article.

Fourteenth—Go over the selling price of the various articles you handle and see where you stand as to profits.

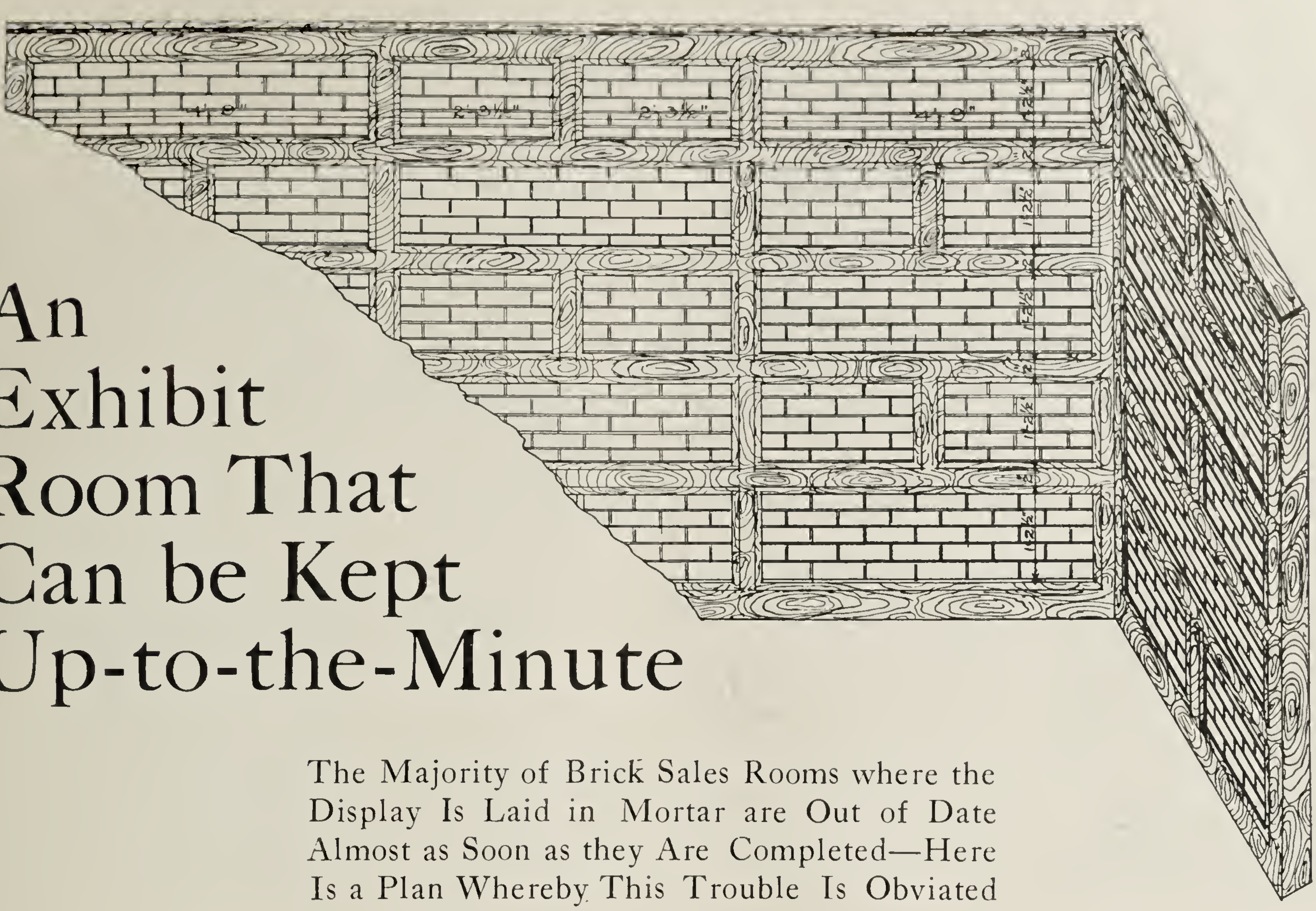
Fifteenth—In making selling prices at the beginning of the new year, take the total expenses of the old year and divide this by the total amount of goods sold during the old year (taken at invoice price and freight) and the result will be the per cent to add to invoice and freight to cover expense, then add your profit and you have your selling price.

A New Machine for Cleaning Old Brick

There has been invented by a Philadelphia, Pa., mechanic a machine to clean used brick that will cut the cost to half or even a third of that of the old style method of cleaning by hand. It is estimated that the number of brick cleaned in that city in a single year is not less than 25,000,000, at a cost of $1 to $1.50 per 1,000. This new machine will clean them for about 50 cents a thousand. The method of operation is to put the brick into the jaws in the front of the machine, which grasp it and move it sideways over the corrugated surface. This cleans the end of the brick, and at the same time the two broad sides at top and bottom are cleaned for about two inches, back of the end. The partially cleaned sides are then inserted between two projecting opposed blades of a four-sided die and a plunger at the other end of the brick comes forward and pushes the brick through. The upper plate of the die is movable and adjusts itself automatically to the thickness of the brick. The sides, as well as the bottom and top of the brick, are thus cleaned all at the same time.

The machine is four feet long and weighs 400 pounds, so that it is readily portable. It is placed upon a platform or truck so as to be about breast high. It can be operated by either one or two men, and with an engine of 2½ horsepower its capacity is 15 bricks a minute. It can be adjusted to work slow or fast as desired.

The commercial value of this invention lies in the fact that when by reason of the cost or because of lack of time, old brick are not cleaned they are thrown away as useless. With the device these brick may now be saved. In New York 100,000,000 brick are now cleaned annually by hand.



An Exhibit Room That Can be Kept Up-to-the-Minute

The Majority of Brick Sales Rooms where the Display Is Laid in Mortar are Out of Date Almost as Soon as they Are Completed—Here Is a Plan Whereby This Trouble Is Obviated

By D. W. Fredericks

A SALESROOM for face-brick and in which the brick are shown in panels "to give the effect of the finished wall," and in which these panels are laid in any way other than in real mortar, is a poor makeshift. It may serve to show how much variation is to be expected in a certain run of brick, but, if the assortment in the panel be a really honest showing, of what will come in the car, it is apt to discourage the would-be purchaser, if shown without the blending influence of the mortar. "Imitation mortar" joints, of paper or wooden lath, magnify every inequality in thickness, every slight spalling of edge. And they cannot be painted or stained to look like any mortar joint that ever was spread by mason's trowel. Felt strips overcome the roughness of the beds of the brick, and, if their edges be soaked in mortar color mixed with water, before they are used, they give a fair impression of a real joint, lacking, however, texture, real color and permanency. Customers will run their fingers over the panels, and sift the powdered color from the felt strips all across or down the brick.

One great objection to an "exhibit" laid in mortar has been its lack of elasticity. If the panel, after it is laid, is all out of harmony with the panel next beside, above or below it, stay it must—shown to its own worst advantage. If the mortar color does not "dry out" to the the desired shade, it is to be regretted, but borne. If the plant that makes the brick you have put in the best light and laid in the largest panel, be oversold, or has a fire, or gives its account to some other fellow, the taking out of that panel is a matter for prayerful (?) consideration.

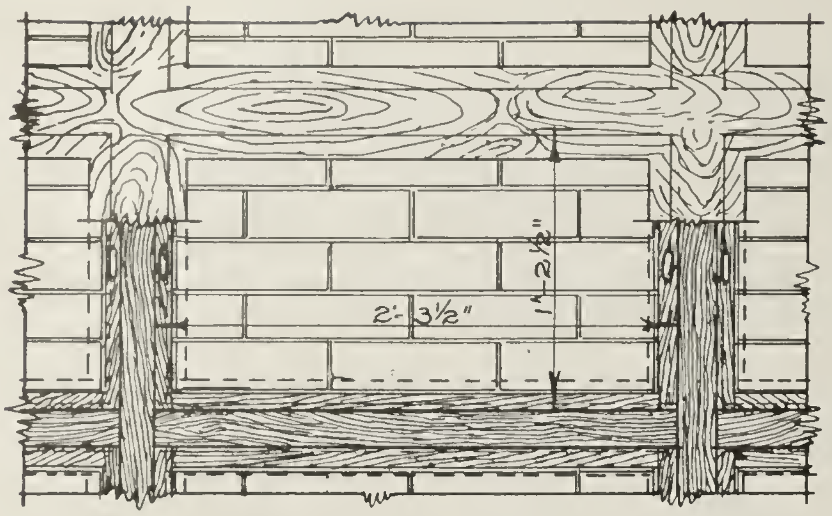
And the other is the nuisance of the bricklayer, with barrels of sand, bags of color, sloppy water and myriad-hued mortar tub, who comes to work after you have read all of your mail and who leaves before you have signed any of it, who must have a "helper" and a "place to work" (that means the whole office) who cannot work Saturday afternoons or Sundays, when he wouldn't be in your way, because, if he did, he would be fined a fabulous amount by his Union, who has his own ideas—always better than yours—of how the brick should be laid, and a host of recollections of the time "when he laid those same brick" in some far-off place that interests you not at all.

And when he "turns in his time" and you sign the check, you, and most of the boys in your office wonder why it was that you all didn't learn bricklaying, instead of brick-selling.

The cost of a laid-in-mortar brick display is a little steep—but so is your rent, and so is the amount you pay the salesmen that a really good brick display will help—help, that is, to bring in the sales you have been paying the men to bring in, and which, if they fail to get, will be a greater loss to you, than to them. It should be figured, therefor,. as an investment, drawing the interest of sales for a number of years. When figured that way, its cost is not prohibitive—rather promising, if truth be told.

The nuisance of the bricklaying at the office can be obviated in a simple manner—have the work done outside. The lack of elasticity can be overcome at the same time.

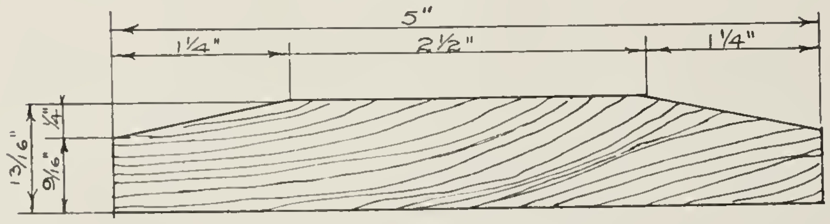
Let us imagine, for instance, that one of your wall spaces is between 14 and 15 ft. and that the height to which you want the panels to run is something like 7 ft. In that space you could, if you wished to do so, put 30 panels, each large enough to hold five courses of brick, each three brick long. "Pretty small panels," you say? Well, some brick only need that space, while others require four times as much, at least. Is it wise to strike



a happy (?) medium, and have some of your panels show more brick than is necessary and others less? They don't sell dry-goods that way, in store windows! What we said was—"you could, if wished to do so," and we hope you will not.

You can divide this space by four uprights (see Figure 2-A-B-C-D) and these should be of 2 in. dressed pine or hemlock. Mortised into these should be the horizontal "shelves," which should also be of 2 in. dressed stuff. The top and bottom strips should be continuous, running the entire length of the exhibit space. Uprights and shelves should be five inches deep. Pieces of 2 in. stuff, cut to fit snugly in the spaces between each shelf to act as supports, are very necessary and will come in very handily when you want to move some of the panels around.

Now make up your mind which of the brick you have on sale are the ones you want to "push" and do not deceive yourself into thinking that you, any more than any other dealer "give every manufacturer a fair show and don't try to influence the customer, one way or the other." You may say that, but you are not a natural born salesman if you do not unconsciously put more pressure on the talk-pump when you show certain bricks you like—or on which you like the profit, or the service, or the fellow that makes them—and, if you still think you don't, you'd better try hiring a real salesman to take care of the office trade, while you attend to the banking or the books, or the sending out of dunning letters.

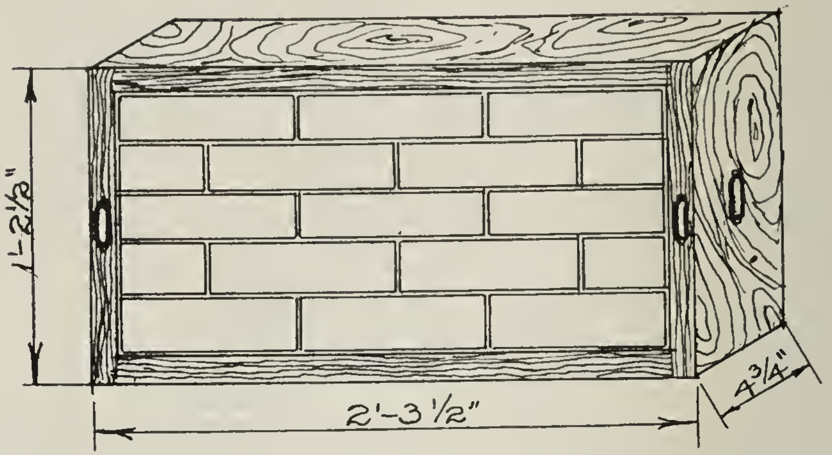


When you have found out just what brick you really want to score most heavily on, put down the number or shade designation and mark it for a "number 2 size" panel. And if there are four or five others that ought to be given a similar consideration, put them down the same way. The rest of the brick you are going to show will go in the "number 1 size." And here is a diagram of that "number 1 size"—make it twice as long, plus 2½ inches, and you have the "number 2 size."

Have the boxes made, all at one time, and don't stick right down to the exact number of compartments in the exhibit space you have mapped out—leave some for extra panels. Then you will not have to leave a hole in your exhibit while you are waiting for a new panel to be laid up. When it comes in, all set, it will be time to take the old one out—keep your display intact.

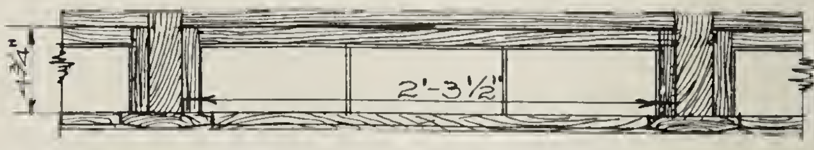
Buy iron plates with slots in them, and good strong screws to put these plates on to the sides and the front of the boxes. They are what you will use later, to catch the prongs of the chain-hoist that may be necessary to hoist these little boxes (they will weigh over 100 lbs. each) into place.

Then contract with some good man to do the laying, in a shed somewhere, on his property or yours. Make him use the kind of mortar color that is most used in your town—or the kind that you sell, just as you wish—and have him use it under commercial conditions, not putting in any more color than he would if he were working on a real building. You are going to show the brick as they will look in a finished wall! Anybody's wall!!



Don't let him wash the brick down until the mortar has dried thoroughly (this does not mean "set") for he is apt to wash some of the soft joints into the face of the brick. You are not on a "time limit" basis, and your bricklayer's ideas of how and when he should do things are based on work other than the kind that is going to be used as an exhibition or in a salesroom.

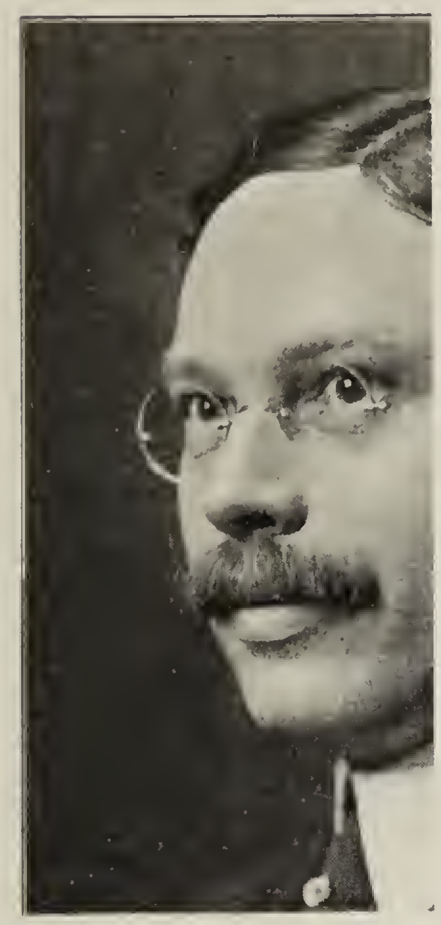
But when they are all dried out, and you have made him relay two or three, just because they did not show the brick off as well as you thought they should, bring them up and put them to work. Your mind will go back to the alphabet-block walls you built in front of the fire, or the things you used to do in kindergarten, for here is a case of putting little ones under big ones and vice-versa. But the elasticity of it! If you don't like it there, put it somewhere else. The panel that "looks rotten" in that light, can go where it will "look fine"—that's what you wanted originally. And after they are all placed, there are three or four, or five "overs," like the fellow who took the clock apart and found it ran, without all of the wheels. What are those for? Why to replace that "prize" panel, when the brickmaker writes "Take no more orders for delivery before October 1st"—ever notice how everybody wants just that brick and nothing else—just then?



And, best of all—you know how you go home, sometimes, and find the dresser over by the window and the bed "turned around the other way"? Friend Wife thought shed'd like to change things around a bit, you know. Looks pretty good to you, too—think there's more room that way. Try that on your brick exhibit—stay down some Saturday afternoon, and shuffle those panels up—bring some of the "discards" out of the storeroom, and put some of the good-looking boys that didn't make good, back in the woodshed. Stand around Monday morning and see if the first customer who comes in doesn't catch the glint of satisfaction in your eye and say "Looks pretty fine around here—what you been doing?"

Getting Around Corners With Ropes

By Charles P. Trowbridge



Mr. Trowbridge, whom you see here somewhat "split up", is an expert on split pulleys and rope transmission.

It is very probable that the first attempts to transmit power to any distance was by means of a rope. First as an appliance for hoisting, later to transmit power from one revolving wheel to another, or from a treadle to a spindle, as in the early foot lathe, and thence to other mechanical appliances, the rope appears to have been the predecessor of the belt, and to have been replaced by the latter only when the amount of power seemed to be too great for a single rope to transmit under conditions of speed and location then existing.

Hampered by the speed limitations of the time, the millwrights of the early factory system, following the precedents set by Fairbairn and his followers, the use of heavy, slow running shafting and gearing acquired to deliver power through a mill from the engine to the machinery, and it was not until higher speeds of shafting came into general practice that belting replaced gearing in general use. The same development caused a revival in the use of rope transmission, and especially since the commercial production of grooved pulleys became possible, the employment of rope driving, either with the English system of independent ropes or with the American system of re-duplication of an endless single rope, became general.

The early methods of transmitting power in this way, by the use of what Professor Reuleaux has called "wrapping" connections, were limited to the delivery of power from one shaft to another parallel shaft. If any other relation of the position of the driving or driven shafts became necessary, various clumsy expedients were devised to hold and guide the belt. When the power had to be delivered around a corner, or transmitted from one shaft above or below to another at right angles in another plane, there appeared the necessity for using what has been termed the quarter-turn belt, a device which every mechanic dislikes, but which he formerly felt compelled to use under such conditions.

With the modern American system of rope-driving, however, the whole question of the delivery of power from one point to another is released from any strict limitations as to the relative position of the shafts, while to a large extent the question of distance is eliminated.

Rope-driving connections have been designed for the transmission of large powers with distances between centers as close as 9 feet and as wide as 700 feet, while the question of angular position of the shafts is always capable of effective solution. Experience has shown that by the use of rope transmission the highest degree of efficiency is attained, the friction losses being kept at a minimum, while the maintenance expense is lower than with other forms of power transmission.

These results are not obtained, as it may well be understood, by the mere substitution of rope for belt driving; it is essential that the installation be designed carefully for the situation in which it is to be used. Only in the light of the teachings of long experience has the modern system or rope driving been encountered and overcome during the past twenty-five years, yet even in this respect it is possible that special and novel conditions may yet arise.

In any case, it is advisable that a rope transmission should be designed and installed by specialists in this particular department of power transmission, both on account of the necessity for application of experience and because the engineer who has already become familiar in designing installation may better suggest methods and applications which would not occur to the machanic, however able, who lacked familiarity with the almost infinite variety of which the system is capable.

Mr. Trowbridge has given us some very practical suggestions and opens up the possibilities of rope transmission.

Award Twenty Miles of Brick Road

The Police Jury of Calcasieu Parish, (Lake Charles) Louisiana, awarded a contract for twenty miles of No. 1 three-inch vitrified Vertical Fiber country roadway on March 4. There are two highways in the award, and Secretary George W. Thurston, of the Western Paving Brick Manufacturers' Association, who is mainly responsible for obtaining the contract, sends an interesting diagram showing the construction. One of the roads is seven miles long and is to be constructed as follows: Three-inch Vitrified Vertical Fiber Block with cement grout filler, built nine feet wide, including curb, and on a four-inch concrete base. The other road is 13 miles long and it is optional with the engineer whether concrete or gravel is used for the base. One hundred thousand square yards of brick are to be used in the two roads. The construction requirements are for a seven and one-half foot dirt road on either side, with a three-foot gravel strip on each side of the nine-foot brick road, which will be placed in the center, of course.

Who's Who

A Page in Which Brick Men Furnish Targets for the Camera Man and the Editor

A. B. LUTEN.

TWENTY-TWO years of A. B. Luten's life, beginning with the first day that he saw the light, and continuing up to the time when he had cast his first vote, were devoted to the noble, if somewhat prosaic, farm life. During this time, he cultivated the habit of early rising, and quite naturally drifted into the milk delivery business as soon as he felt strong enough to convince his farmer-father that the science of agriculture had palled upon him. This early rising habit still persists, as some of his competitors find, even today, and the sowing and reaping instinct of the farmer is still strong in A. B. Luten, albeit that he now sows paving brick arguments and reaps fat contracts.

Graduating, after a year's course in a milk wagon, he went to business college at Grand Rapids, Mich., and then put in seven years, figuring B. M.'s in a lumber yard. Seeing that the selling end of the lumber business was the one that seemed to bring in the best smoked bacon, he cultivated the persuasive language he now uses in moderation when addressing county commissioners and the like; feeling that his real forte lay along public work, where competition was keen but rewards correspondingly big, he took up that line, in connection with fuel saving appliances.

So he gradually approached brick. His first experience with burned clay was as a paving contractor, operating in Grand Rapids. Sometime about 1904, he felt the call of the salesman strong within him, and joined the Metropolitan Paving Brick Company's forces. That was ten years ago, and A. B. Luten is still among those present when the Metropolitan roll is called.

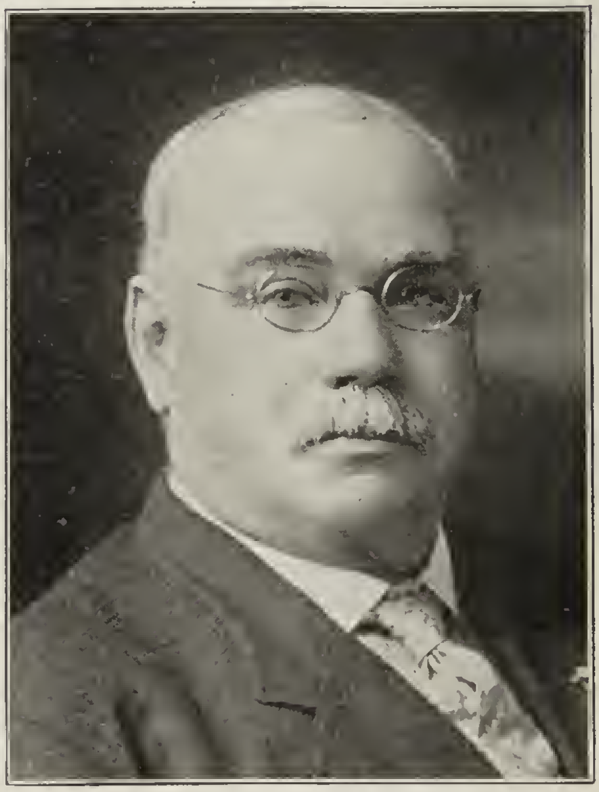
A. B. Luten is square, fair, and upright—the latter about six feet three. He is a "good fellow" in every sense of the word. The men who have gained his friendship are fortunate, for his loyalty is of a quality that has no superior and embodies all three dimensions.

THE mark of a man of the world is absence of pretension ❧ He does not make a speech, he takes a low business tone, avoids all brag ❧ Promises not at all, performs much ❧

Emerson

GOVERNMENT buildings are, as a rule, built of stone. The older buildings at the West Point (N. Y.) Military Academy were no exception to this rule until, five or more years ago, Cram, Goodhue & Ferguson's comprehensive plan for a Monumental West Point were accepted. Now Cram, Goodhue & Ferguson have offices in New York, but are essentially Bostonian. Their office in the "Hub of the Universe" naturally fell under the beneficent influence of William J. Condon, than whom New England boasts no better, older or more popular salesman of face brick. Rough-face brick was then a much less unknown quantity than it now is. "William" showed the architects, the captains, colonels and generals that the particular rough-face brick he was handling had the same general color tone and could be given the same texture as the pinkish-gray granite that makes the hills back of West Point—in fact, makes West Point itself. Economy dictated this stone as trim—"William" suggested his brick as the field and walked away with an order for a million and a half face brick—somewhat of a record, even today. And that was only a beginning—other buildings followed, and the coming Grants and Lees will look back to walls of brick, instead of stone, much because William J. Condon saw his duty, and, like every good brick salesman—"done it."

William J. Condon is a veteran brick salesman. He has, however, kept time with the march of progress, and, by avoiding the narrowness of the old school, has demonstrated his belief in the policy that salesmanship consists in selling a man what he wants and should have, rather than selling him something that pays a big profit, but will not give satisfaction. On his list of customers—architects and contractors to whom he has sold material, are more than 1,400 live factors in the brick using community that, until we took on the Philippines, was this country's "farthest east." In this section, which extends from Penobscot Bay to Sandy Hook light, William J. Condon is brick's most prominent advance agent.



WILLIAM J. CONDON.

The Superintendent

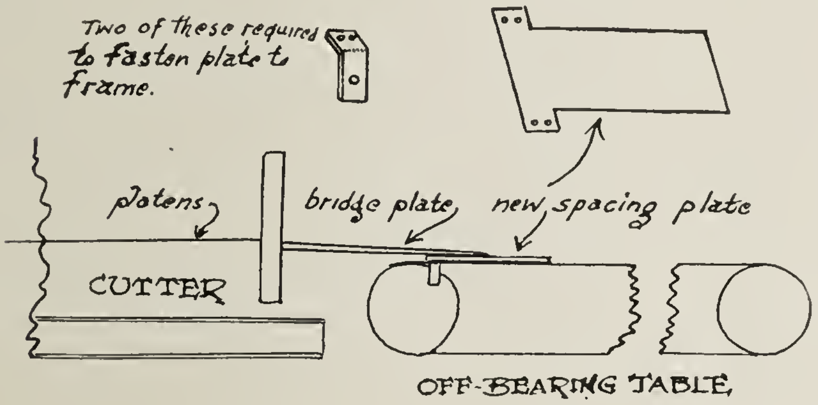
A Department Conducted for the Interchange of Ideas in Methods of Manufacture

A special prize of $5 is offered in each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?

This Idea Wins the First Prize

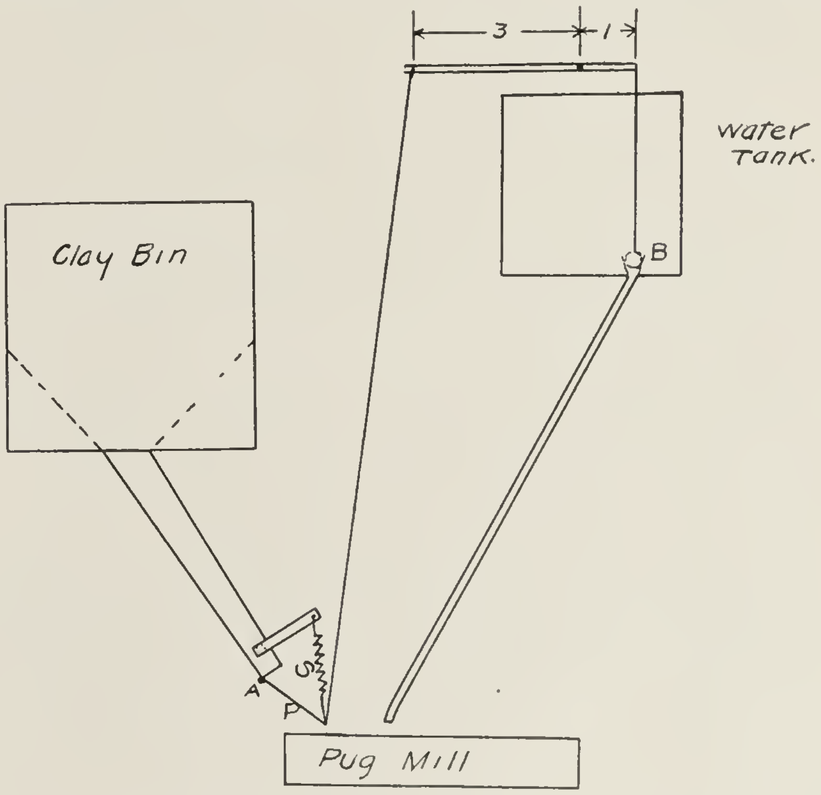
A Suggestion for the Cutter.

I wish to submit an inexpensive and simple device to cause the brick to flow from the cutting table on to the off-bearing table in a steady stream. The following point is noted in the operation of the automatic cutter illustrated. When the table is making a cut, the carriage travels with the bar of clay, and at this time no brick are delivered to the off-bearing belt, but when the carriage is on the return trip to the starting point, preparatory to making another cut; then the bar of clay issuing from the auger forces the brick already cut from the platens onto the off-bearing belt. It is evident, therefore, that there is an intermittent flow of brick from the table and results are sometimes undesirable for several reasons. The off-bearer at one time has hard work to off-bear and hack the brick properly on the cars, and then has a perceptible period of rest while waiting for the next lot of brick from the cutter. If he waits too long he works with additional speed which results in finger marked and broken brick and too high a percentage going over the end of belt to the waste clay conveyor. To briefly repeat, we have this: When the carriage of an automatic cutter travels with the bar of clay, no brick issue from the moving cutter, but when the carriage is stationary or moving back, the brick are leaving the table in a steady stream. It is evident, then, that if between the platens and the off-bearing belt, we have an additional plate, which does not move, and over which the brick slide after leaving the cutter, we will have a solution. For this plate provides a stationary base over which the brick are pushed constantly by the steady flow of clay from the die of the auger machine. To install on machine, procure a piece of sheet metal about ten to twelve inches wide, the length to be determined by the machine in use. Place this sheet at the cutter end of the off-bearing belt, and allow one end of it to lap under the bridge plate—i.e., the plate which is an extension from the platens to the off-bearing belt. The new plate is to extend under the old bridge plate, to such a distance that when the cutting carriage moves back to its initial cutting position, the old plate will still over-lap the new plate two or more inches. The length of the plate is determined when the cutting carriage is at the lower end of the cutting operation. When in this position, the new plate must extend beyond the end of the bridge to such a distance that the uncovered portion will accommodate three or four building brick of the column. Model the new plate similar to the bridge plate, making its delivery end a knife edge. Bolt the cutter end of plate to the off-bearing table frame. Leave sufficient clearance between plate and belt to allow for free movement of belt, and allow the delivery end to rest on the belt.—Mark D. Bentley.



An Automatic Control of Clay Consistency.

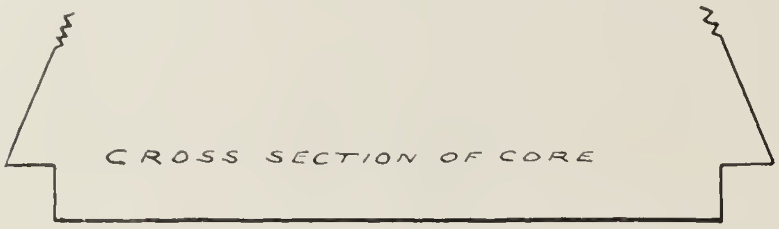
The accompanying rough sketch illustrates a device by means of which the need of a pug mill man is practically eliminated. As the dry clay feeds down from the bin it falls onto a sheet iron pan (P) hinged to the chute at (A) and connected to the spring (S). The clay falling from this pan feeds into the pug. A rope is attached to the pan which is connected to a "reducing motion" consisting of 1:3 lever, to which another rope is attached operating a "drop ball-valve" (B) as shown, which controls the flow of water to the pug. When clay falls onto the sheet iron pan, the latter of course hinges downward, due to the weight of the clay and thereby actuates the ball-valve (B). When there is less clay on the pan, it rises by virtue of the spring (S), thereby lowering the ball and shutting down the flow of water, keeping the clay in the pug at a constant consistency. The only ad-

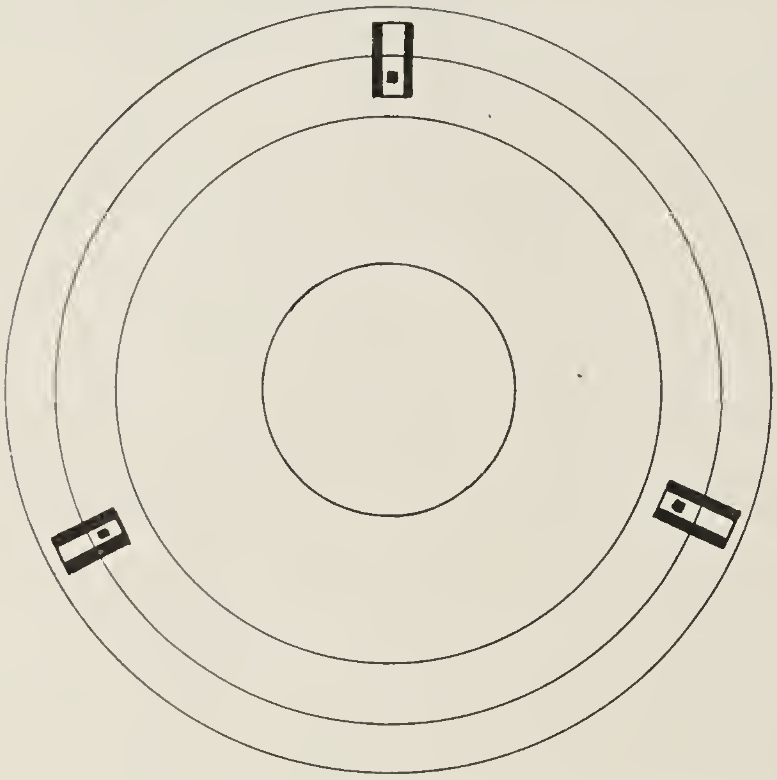


justment necessary is that of the spring which must be just of the right degree of stiffness to allow the sheet iron pan to drop the proper distance. When this adjustment has been made, the device is practically automatic. It is apparent that this arrangement will work only when the clay is dry. Or in other words, a given volume of clay feeding into the iron pan must always have practically the same weight.—C. S. K.

To Increase Percentage of Perfect Tile.

In making tile, one trouble is that they keep getting thicker. The way to remedy this is to have a special die and core made. Have the walls of the core made thick enough so there can be a shoulder on it, so a cast-iron ring can be slipped on, and as soon as it becomes worn, take it off and put on a new one. Have stub bolts and a lug to hold the ring in place. Fix the die in the same manner and you will not have any more trouble with your tile running too thick.—F. W. Owens.





CAST IRON RING ON CORE

Quick Lime for Blasting Clay.

Where hard clay is encountered, and too little of it is in sight to pay for regular blasting, the bank may be broken down by drilling holes of three-inch diameter about five feet on centers and back about five feet from the edge of the bank. Fill these holes with quick lime and pour water on the same. The expansion of the lime will break down the bank with very little expense.—M. R. Watson.

Some Prize Winners

Have failed to send in their proper addresses with their contributions to this department. Those whose ideas have received publication but for which no remittance was made, are asked to notify us, enclosing a clipping showing the same and remittance will be made promptly.

Small Perforations in Flower Pots.

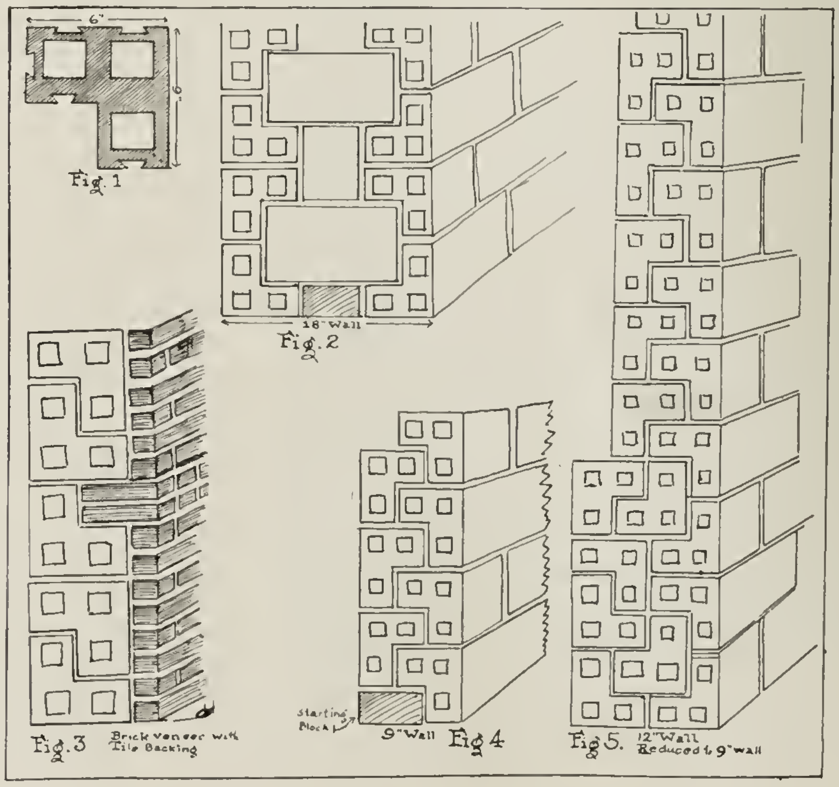
Potters should see that all perforations are perfect and remove, before shipment, the "plastic cuticles" that still adhere to the pot-hole. Misfits are usually due to an improper stamping process. A pot with a circle or two of small perforations, seems desirable, as it would do away with the necessity for incovers.—J. Bertram.

A Burned Clay "Tailing Chute."

Nearly all manufacturers of clay ware have running back to the grinding mills, a spout that is commonly called the "tailing chute." As a rule these are made of wood and sometimes lined with tin or sheet iron. It is a well known fact that chutes made of this material will soon wear through as in our particular case where our dry pans grind large percentages of grog, we had to renew this spout or chute about once every six weeks, when the following idea was hit upon. The first time we made flue lining, we took 8½x8½ flues and split them half in two while they were green and also put two holes in each end so that they could be fastened down with nails. After these flues were burned these halves were put inside of the wooden spout for lining. The nails driven into the holes and the heads of the nails covered with a little cement, the room for the cement having been provided for by countersinking when the flues were green. A spout of this kind will last indefinitely.—W. B. Harris.

Introduces New Hollow Block.

I enclose sketches showing a new interlocking building block invented by me and which has been protected by United States patents. Fig. 1 is an end view of the block which is scored on one side and not on the other side, enabling the builder to use either scored or smooth surface. If made from a good uniform color-burning clay or shale the block can readily be used for facing material which alone makes it very valuable. Fig. 2 is an 18-inch wall built with the blocks in the center laid across the center of the wall, one cut 12 inches and the short course 6 inches long, making a very strong wall. Fig. 3 is the block used as a backing for a brick veneer wall. Fig. 4 is a 9-inch wall which interlocks perfectly and having only 3-inch mortar bed which insures perfect bonding. Fig. 5 is a 12-inch wall built of the interlocking tile and then reduced to a 9-inch wall, making a very strong wall. Notice that the load-bearing laterals pile one above the other no matter in what direction they may be turned.—W. W. Smith, of the W. W. Smith Brick & Tile Works, Shallow Lake, Ont.



The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record." Chicago.

QUITE often we have had occasion to refer to the local advertising campaign conducted by the Algona Brick & Tile Works, of Algona, Iowa, as an illustration of the value of publicity in creating a demand and actually increasing sales. C. R. Madson, manager of this concern, inspired by some of the articles on this subject printed in this journal began a systematic campaign in his local papers. Up until that time he could not interest his home builders to use anything other than lumber or concrete. His first ad, however, brought him contracts for three brick houses and he has been able to develop a considerable business the past year.

The following letter from Mr. Madson contains some good advice to not only our Hawarden friend, but to clayworkers in general:

> I notice in the Feb. 3 issue of "Brick and Clay Record" that we have a brickmaker at Hawarden, Iowa, that has cold feet. While reading this letter (from Hawarden) a mule story came to my mind. A doctor down South, who was riding out on one of his professional calls one day, came to an old colored man with a mule that had balked in the middle of the road. As the doctor came up the old darkey said: "See heah, boss, I will give a dollah to any man that will start that mule." "All right," said the doctor, "we will try." So the doctor jumped out of his buggy, took his hypodermic syringe, went up to the mule and injected some chloral under his hide. The mule stood a minute, then reared up on his hind feet, and started on a full jump down the road.
>
> The old darkey looked on in great surprise a moment, then started after the mule, crying, "Whoa, whoa;" until he gave up the chase for want of breath. When the doctor came up to him he said: "See heah, boss, how much do you charge for that?" The doctor smiled and said, "Oh, about a dime."
>
> The darkey fumbled in his pockets and pulled out twenty cents and said: "See, heah, am twenty cents; just put some of dat in me, so I can catch dat mule."
>
> Application of this story: "Some people need an injection of some kind to catch up with their business."
>
> We have concrete on the run in this town and we are going to keep after it with brick and burned clay.
>
> The only way to create a demand is to use printer's ink—to ADVERTISE. Advertising can be made to produce effects cheaply and effectively and our particular line is no exception even though many clay men excuse themselves by trying to make themselves think that our line is unusual. In this way they cheat themselves out of a nice line of trade.
>
> John Wanamaker, in an address, expressed this same idea as follows: "If you have exactly what 500,000 people want, but only 500 know that you have it and what it is used for, the other 499,500 are going to use something else."
>
> If we have a product which more people in our vicinity should be using, whose fault is it if they are not using it?
>
> My advice to you who are dissatisfied with your present inaction, would be to use a campaign along the following lines and let me state right here, it is not a theoretical idea of mine but is based on a campaign that has worked out successfully right here in Algona. This campaign consisted of an ad running each week discussing minutely the different ways that clay products could be used. In some of these we ran a cut of houses and other buildings. Circular matter also was used.
>
> The lumber and cement interests are advertising in this manner which accounts for the cement people getting $2 per thousand more for concrete brick at Hawarden than our friend is getting for his clay brick. Their success will be yours if you buckle into the advertising proposition in earnest.
>
> A campaign of advertising of once a week for one year only fifty-two ads will make a big difference in the sale of your product in your community. You will find that your product will become a standard to which others are compared—that you will become an acknowledged authority in your line—that your advice will be sought by those contemplating buying in place of your seeking them.
>
> But in all your advertising and selling work, look at your proposition from the other fellow's point of view. Get over on his side of the fence. Think of your product in terms of the other man's view, and so get a point of contact with him. Put his need, his opportunity, in the forefront of your talk. If you want the public to read your advertisement, establish at the outset a point of contact that will show readers—from their point of view—why they should be interested.
>
> Make your product on your own side of the fence. But when you sell it, get over on the other fellow's side of the fence and frame up your talk upon what it will do for him. Buckle in—tell them effectively, persistently. If you make good ware let the people in your community know it.

Mr. Madson writes like a man who has been convinced. We believe he would gladly send samples of his advertising to any clay worker who is interested enough to write him.

A "Brick and Clay Record" Booster.

The National Brick Co., of LaPrairie, Ltd., 10 Victoria Square, Montreal, Canada, is a believer in "Brick and Clay Record." If you doubt this statement read this letter:

> We beg to enclose herewith bank draft for twenty-seven dollars ($27) for renewal of subscriptions to "Brick and Clay Record" for 1914 to the following:
>
> Jos. Sawyer, Montreal.
> H. C. Stone, Montreal.
> Messrs. Saxe & Archibald, Montreal.
> G. A. Monette, Montreal.
> Messrs. E. & W. S. Maxwell, Montreal.
> Messrs. MacVicar & Heriot, Montreal.
> Messrs. Hutchison, Wood & Miller, Montreal.
> Messrs. Brown & Vallance, Montreal.
> J. R. Barlow, City Engineer, Montreal.

It will be noted that most of the names given are, presumably, those of men in official life whose proper education in clay products will greatly benefit our Montreal subscriber. We might add that the fact that the added tax of $1 each on each subscription (for foreign postage) did not deter the National Brick Co. from being liberal in its subscriptions.

Believes in Co-operation.

Daniel A. Greenwald, manager of the Schuylkill Press Brick Co., Schuylkill Haven, Penn., is one of the many clayworkers who has responded to our plea for co-operative work and sends in one of the coupons found elsewhere in the magazine giving the list of the products manufactured. This information is intended to be used by us in supplying other clayworkers with the name of the manufacturer in any particular line should someone wish to purchase a clay product not made or handled by him. Mr. Greenwald writes:

> Enclosed you will please find coupon as to product manufactured. We make a dry pressed face brick and common building brick. We had a prosperous year for 1913, and the outlook is fairly good for the year 1914 so far. We are kept busy and are making brick every day. We made a number of improvements to our plant, such as to shale house and kilns, and are now in shape again for another year to go by—without breakdown, let us hope.

Wins Fight for Brick Roads.

In the Dec. 16 issue, page 1283, we published a letter from S. M. Knapp, a member of the Minnesota House of Representatives, who told us of some 80 miles of road improvements contemplated in Winona County. Mr. Knapp said the commissioners had about decided to use concrete and as he was in favor of a more permanent road asked us if we had some literature telling of the merits of vitrified brick which he could send out among the commissioners and the taxpayers. We forwarded him copies of the "Wayne County Concrete Road" report, published Oct. 7, 1913, in this magazine. A letter just received from Mr. Knapp shows that his fight has met with success as brick will be used on most of the county roads to be improved. Here is his letter:

> Inclosed find a clipping from a local paper. It will show you that we have got them going. Keep after them now and you will be all right. Get the names of our county commissioners and town boards and send them some of the best stuff you have.

As the commissioners were to meet Feb. 17, the time was too late for us to get the list referred to and be of any value. The clipping from the local paper mentioned above follows:

> Vitrified brick may be substituted for concrete in the proposed further building of eighty miles of permanent good roads in Winona county, following up the sixteen miles of concrete road now in process of construction. Donald B. Pritchard, the good roads enthusiast of southern Minnesota, has been looking carefully into this matter for the past week and has become convinced that brick roads properly laid would be just as permanent and lasting as concrete and he believes that by receiving bids for both brick and concrete roads the competition will be more keen than where only concrete bids alone are solicited and better prices can be secured. The matter has already been brought informally to the attention of the members of the county board, and at the February meeting of that body to open on the 17th of that month it will probably be taken up officially.
>
> The experience of the city of Winona with vitrified brick paving has been eminently satisfactory, that put down nearly twenty years ago being very little worn and all classes of citizens being satisfied with the service it has given.
>
> For the laying of vitrified brick country roads, a different treatment would likely be given. In all the brick paving put down in Winona up to last summer sand filling was the only kind used. Last summer sarco, a tar preparation, was employed and will make the road less noisy. For country roads a cement filler would probably be used, and this when set would practically make the road as firm and solid as if concrete, and eliminate danger from washing that might come from a sand filler.
>
> The present central concrete roadway in the proposed brick roads would be constructed of brick instead of concrete, and the shoulders on either side would be of crushed stone, with quite likely a cement filler on them also to hold them solid.
>
> Mr. Pritchard has spent a good deal of time in going into the matter the past week. He says the reason brick has not heretofore been considered in connection with the permanent road improvements in Winona county has been because it was supposed the cost would be prohibitive, but a careful investigation into the matter has brought out that on some stretches it is probable brick could be laid more cheaply than concrete.
>
> Where brick would be the cheapest would be where long wagon hauls are required to get the material to where the road is to be constructed. On short wagon hauls in all probability concrete could be laid more cheaply. The grading would be the same for either class of road. For brick there would have to be a sand foundation, with the brick laid on that and the cement filler between the brick.
>
> The present roads on Burns valley, to La Moille and over the Stockton hill will have to be all finished in concrete, as the original contracts were awarded for that and if a change was made now when the contracts were relet it might furnish the bonding company a chance to slip out of their guarantee.
>
> The proposed additional stretch of eighty miles may possibly be laid some brick and some concrete. At all events it is considered very probable bids on both materials will be received and then the county board can select whichever can be laid to the best advantage.

Once more we call attention to the fact that the good offices of an organization like that of the National Paving Brick Manufacturers' Association, is essential everywhere.

Likes Optimistic Outlook.

We are in receipt of a letter from the P. M. Johnston Brick Works, St. Elmo, Ill., E. M. Durland writing, which reads:

> We are always glad to get our copy of the paper and find many things in it of benefit. Your recent number is fine and has many things of interest and especially the letters from various localities, and the general optimistic view of these men who should know, as regarding the good business of the future.

Wants Ammunition for Battle.

The Citadel Brick & Paving Block Co., Ltd., of Quebec, Canada, writes:

> We are manufacturers of partition walls and floor terra cotta. We would like to protect ourselves as much as possible against plaster, cement and other blocks. The Keystone Fireproofing Co. of New York are trying hard to introduce their gypsum partition blocks and gypsum so-called fireproof flooring. We would be pleased to have some literature regarding their system in order to protect ourselves against gypsum, cement and other similar products.

We presume you wish to see the advertising literature issued by the gypsum manufacturers. Why not write to the United States Gypsum Co., Monroe St. and Fifth Ave., Chicago, and ask them for descriptive literature and telling them you are interested in the same?

Correcting an Error as to Dies.

A letter from Willard F. Gibson, superintendent of the National Fireproofing Company, of Canada, Ltd., came to this office the latter part of last month, and would have been published in the March 7 issue, but that it was crowded out. We take great pleasure, however, in publishing it at the present time.

> In your issue of February 17, in reporting the paper presented by the writer on hollow tile fire-proofing, an error seems to have crept in, as I gave the probable maximum number of dies as 150 and costing, in Canada, approximately $200 each, making a total of $30,000—not 300 dies at a cost of $60,000. Many hollow ware men will no doubt think $200 excessive, but this includes patterns, castings, machining and the labor cost of adjusting these dies to uniform flow. I will appreciate your rectifying the figures that were published.

We trust that our readers will understand that the error was an unavoidable one, and forgive us for the misstatement.

From the Stepping Stone in the Pacific.

C. P. Oudin, president of the American Fire Clay Company, of Spokane, Wash., writes a postal from Honolulu, dated Feb. 1, 1914, in which he says:

> In the last "Brick" Mr. Houlihan, of Seattle, thinks I am a knocker. If good business and trips to this perfect place is produced by knocking, let me be a knocker all my life. There is a clay plant here that I am going to visit and will write you about, later.

Mr. Houlihan certainly did stir up something, when he wrote what he thought of the prospects and why they were so cerulean. "Brick and Clay Record" trusts that some real, lasting good will come from the publicity it has given the controversy.

Correcting An Error in Giving Credit.

We print below a letter from Frank W. Butterworth, general manager of the Western Brick Company, of Danville, Ill., which is self-explanatory:

> I note that in your issue of February 3rd you say that the rules of the American Face Brick Association were drawn up by me personally. This is not correct, and in justice to the other members of the committee, I think it should be corrected. The Rules Committee consisted of Mr. Sibley, Mr. Black and the writer, and it will be a special favor if you will see that these gentlemen get credit for the preparation of them.

"Brick and Clay Record" was drawn into this error through the knowledge that the "Rules," as adopted, were based, largely upon Mr. Butterworth's recommendations, made at the French Lick convention.

Competition in Brick Selling

William J. Condon, one of the best known brick dealers in the New England states, located at 45 Milk street, Boston, Mass., has something to say about unfair salesmanship. His letter tends to show in contrast fair and unfair methods employed and follows:

> The contest for the order for face brick for a public building to be built in this city, brought out in sharp contrast the methods adopted by competent and incompetent salesmen, the quantity required, some 500,000, making the order of some value.
>
> In the letting of contracts, the city of Boston, through its agents, are prohibited from designating any specific article, and in the specifications for this school, a brick was called for, "similar to that shown at the office of the Boston School House Commission, or equal," the brick being one submitted by the writer, and tentatively approved, unless something "equal" or superior could be found. The price of the brick was named.
>
> That specification left the matter of supplying the brick open

(*Continued on page* 948.)

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

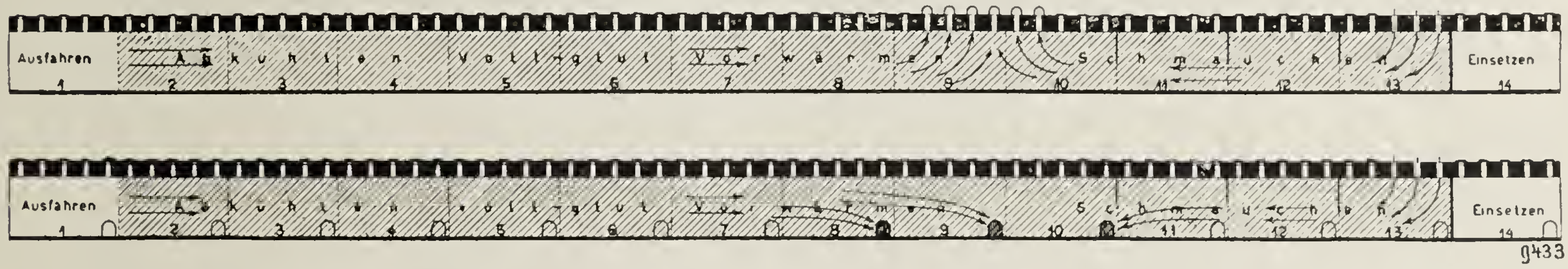
Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

A SUBSCRIBER to "Tonindustrie-Zeitung," a German periodical devoted to the interests of the clay industry, puts the question to the Questions and Answers department of the above mentioned magazine, whether, during water-smoking in the Hoffman kiln, it is more advantageous to open the firing holes to admit fresh air or whether it is better to keep them closed and make use of the small water-smoking furnaces, as is a common custom in Germany and which of the two methods results in best fuel economy.

In answer to this question quite a large number of replies were given, most of them advising against opening the firing holes, claiming that the combustion gases were thereby cooled off, as well as the ware which had been preheated by these gases, the result being an increased consumption of fuel. Furthermore the capacity of the kiln would be lessened because of the resulting cut in the draft, caused by opening the firing holes, which would cut down the speed of advance of the fire.

Some of this discussion should prove interesting as well as profitable to the American clayworker who is enjoying the advantages of the continuous kiln.

A reply given by R. Hielscher advises against opening the firing holes, stating his reasons and a rebuttal to his remarks is given by A. Nawrath, who disagrees with him.



Hielscher cites a case of years ago, when the Hoffman kiln was first invented, where a certain superintendent, who was having all sorts of trouble in obtaining clean colored ware, conceived the idea of opening the firing holes of those chambers just ahead of the high fire. The result was that beautifully colored ware was obtained, the condensation which had heretofore been experienced, together with its accompanying evils, being avoided.

In spite of these results, says Nawrath, Mr. Hielscher maintains that the entrance of fresh air is accompanied by a somewhat greater fuel consumption and he pleases to refer to the opening of the firing holes as a makeshift and the resultant method of water-smoking a poor one indeed. Hielscher further maintains that the present methods of water-smoking, using the small auxiliary furnaces, or waste heat from the cooling chambers, can only take place between two of the paper partitions which serve to separate the chambers. The fresh air admitted just ahead of the fire has a tendency, furthermore, to pass into those chambers which have already been preheated, and thereby cools them.

We willingly admit, says Nawrath, that water-smoking by such a method as the one just mentioned would be attended by the evils described. In a continuous kiln, with the smoke flue on the bottom, the combustion gases are, before they enter this flue, at a temperature which is very near the dew-point (or saturation point) for the water content which they are carrying. It is very evident then that if cold air be allowed to mingle with these gases, the result is inevitably a precipitation of water on the ware. The re-evaporation of this water of course means more fuel and the replies advising against such a method of water-smoking are surely justified.

Yet, excellent results can be obtained by the admittance of fresh air, as Hielscher admits, if it is done properly. However, before describing the correct method of doing this, it might be well to say something regarding the use of waste heat or the use of auxiliary water-smoking furnaces which some recommended.

The complete drying out of wet ware between two paper partitions can only be atttained when the burning canal is very long so that there is sufficient time to heat the ware up slowly and to reach the temperature necessary for the complete driving out of the water. A period of 24 hours is insufficient for a large amount of ware, using only waste heat, especially when the ware shows a tendency to crack easily and therefore requires careful warming up.

For water-smoking chambers separated by paper partitions a temperature of 250 degrees F. is necessary if it is to be effective. Very seldom, however, is the heat necessary for the attainment of this temperature available, and especially when the burning temperature is relatively low or when the burning canal is short and the burning is accomplished in a short time using a strong draft.

In such cases one could use the waste heat from the cooling chambers to a much better advantage for preheating the air necessary for combustion.

By the use of auxiliary furnaces no difficulty is experienced in reaching a temperature of 250 degrees F. but it is only accomplished at the expense of a high consumption of fuel which often amounts to as much as 220 pounds of coal or more per 1,000 brick. This method also requires a longer time, especially when the ware shows a tendency to crack. If, in order to water-smoke more quickly, the temperature be raised too rapidly, much harm can result.

Water-smoking with the aid of fresh air, however, can be done successfully and there are no secrets about the method. Bock as far back as 1893, describes this method, referring to it as the "Rückwarts-schmauch-verfahrung" (return water-smoking) and has further described it in his books, "The Brick Plant" and "The Manufacture of Brick."

The original description of the method as given by Bock was applied to a kiln having the smoke flue on top but it has application similarly in kilns having the smoke flue on the bottom. The two accompanying figures show a cross-section of a kiln, having the flue on the bottom. In both figures, chamber No. 1 is being emptied, Nos. 2-3-4 cooling, 5-6 on high fire, 7-8-9 preheating, 10-11-12-13 water-smoking, while No. 14 is being set.—Translated by Charles S. Kinnison.

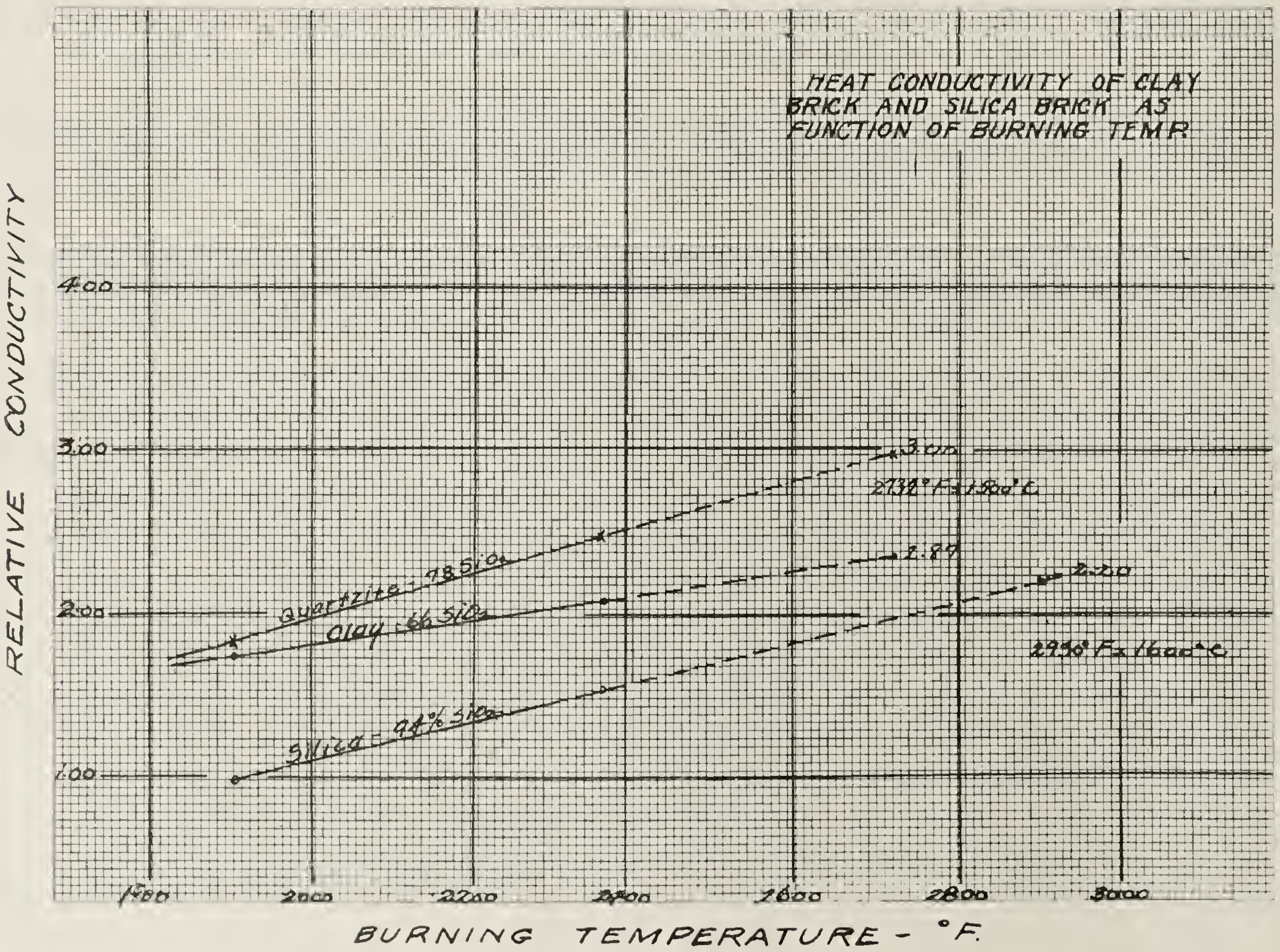
Relative Heat Conductivity of Silica and Clay Brick

Various references have appeared in publications the past year relating to the heat conducting power of silica brick as compared to clay brick. In practically all cases it has been stated that silica brick are less perfect conductors than clay brick, says S. M. Marshall in Met. & Chem. Eng., Feb., 1914. In the majority of cases this comparison has apparently been taken unquestioned from tests made by Wologdine and published in Revue de Metallurgie, June, 1909. The results of this work are shown in the following table:

Material.	Burning Temperature.	Conductivity. Cal. per 1° C. Diff. per Cu. Cm.	Rel. Cond.
Quartzite Br.	1920° F	.0037	1.85
	2370	.0050	2.50
Clay Brick	1920° F	.0035	1.75
	2370	.0042	2.10
Silica Brick	1920° F	.0020	1.00
	2370	.0031	1.55

The results are also shown in the accompanying figure and the curves have been extended to the higher burning temperatures of these materials. It will be observed that the conductivity of the silica brick burned at about 2,930° F. (1,600° C.) is greater than for clay as obtained by Wologdine, though somewhat less than the clay results at the usual burning temperatures. These results in themselves appear somewhat, as it would be expected that the conductivity would vary at least in some regular way with the silica content. It is shown that the conductivity increases with the temperature of burning and commercial silicia brick are burned at a higher temperature than 2,370° F. (1,300° C.) and at a temperature from 250° to 450° F. higher than for clay brick. Hence while Wologdine's results may be correct for the materials tested, yet they are useless for commercial American refractories.

Experience with the use of silica brick as compared with either clay or quartzite brick in by-product coke ovens, gas retorts, checker chambers and many other places has shown that silica brick are appreciably better conductors than the other two materials.—Chas. S. Kinnison.



Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Roofing Tile Manufacture.

396. *Kentucky—We would like to have some information on the status of the roofing tile business in this country, especially in Kentucky. Is there a good demand for roofing tile? It seems that we are unfortunately located for a drain tile plant and we are wondering if we could not use our round-down-draft kilns and drain tile machinery profitably in the production of roofing tile provided our clay is suitable. We understand that we would have to add some more machinery.*

The manufacture of roofing tile in this country is yet in its infancy. There are only a few plants, and until recently most of the tile used was imported. There is a good demand for the product and the few plants that are making it ship extensively. Most of these plants are located in and around the larger cities, particularly in Indiana and Ohio. The manufacture of roofing tile offers many difficulties. A clay that may make a good drain tile may not make roofing tile. Your material, therefore, should not only be thoroughly tested as to its physical and pyrochemical behavior, but the extent and uniformity of character of the deposit should also be studied carefully.

There are two kinds of tile made—porous and vitrified. What style you make depends upon the kind of clay you have. In the manufacture of the porous tile the manufacturer should *make* his tile before it goes to the kiln, while the vitrified manufacturer depends upon the *burning* to *make* his. In other words the porous tile should receive much the greater attention in the preparation of its raw material and in the forming, for, if the tile is not strong and solid when dried, it will scarcely harden and strengthen enough in the firing process to make it frost-proof.

The vitrified tile may be made from granular, poorly prepared raw material but if it is of the right vitrifying qualities it may be made durable by hard-burning.

The porous tile manufacturer has much the best of the argument. By using extreme care in handling his crude material, the working of which can be largely handled by machinery, he obtains a product that goes into the kiln in the best condition—that is sound and straight. By stopping the burning at a point where the physical strength, though not at its best, is sufficient, he obtains a product that has not undergone any severe volume changes and, therefore, remains sound and straight, but not brittle.

One of the greatest sources of loss in tile manufacture is the warping, cracking or denting of the ware. The porous tile maker has the minimum of this.

The manufacturer of the vitrified tile is apt to have all sorts of trouble. To minimize this he must use some sort of saggers in his burning to support the tile on account of the great shrinkage and the tendency to warp. This means, of course, extra expense and a large amount of extra heat is necessary to heat up this dead material each time.

To first ascertain whether your clay is adaptable to the manufacture of roofing tile send a sample—at least fifteen hundred pounds—to some expert clay analyst. Any of the ceramic departments of the state universities, or even the machinery men, can tell you as to what this charge will be.

This analysis is necessary as it may save you several thousand dollars in experiments later.

In the meantime, write to J. A. Bownocker, state geologist of Ohio, at Columbus, Ohio, and ask him to send you Bulletin No. 11, the price of which is 75 cents. This book is cloth bound and contains nearly 500 pages of exclusive matter on the subject of tile manufacture, and is the latest word on this subject. It was written by Wolsey Garnet Worcester, with Prof. Edward Orton, Jr., as collaborator and editor, and is the most comprehensive treatise on any subject of a similar nature we have found printed in the English language.

Fir Wood and the Klose Kiln.

386. *Oregon—Having bought a brick and tile plant, I find among some papers a copy of the December, 1912, issue of "Brick and Clay Record," in which I read an item by R. C. Crosby about a continuous burning and drying kiln at Seneca, Kansas. Has this method proved successful? Can wet or dry fir wood be used in the burning?*

The kiln referred to is a Klose continuous kiln and is being introduced by the Denison Ceramic Engineering Company, 816 Hippodrome Bldg., Cleveland, Ohio. This kiln includes the principles found in any other successful slack-fired continuous kiln, which claims efficiency from a fuel-saving standpoint. The meritorious features of this particular type—as claimed by the holders of the patent, is that the necessary principles are included in such a simple manner that it greatly decreases the cost of construction over other types of continuous kilns. This kiln is for burning such commodities as building brick and building tile. There are a number of them in operation giving satisfactory results. Fir wood could be used (preferably dry). It, however, requires a special setting of the brick so as to provide for sufficient space for the combustion and the proper distribution of heat throughout the kiln.

Hollow Partition Block.

350. *California—We wish to thank you for the address of the German publication, "Tonindustrie Zeitung," given in your answer of our inquiry in the March 7 number but would again pray on your good patience for information. Can you give us the address of the porous partition block manufacturers mentioned on page 95 Jan. 6 number? Can the device mentioned in the Feb. 3 number, page 365, be attached to the drive shaft of the pug mill or brick machine and do the recording? Where can these ammeters be purchased?*

The name of the manufacturer is not given in the German paper from which the article we printed was abstracted. We have sought to obtain this information from other sources without success. The ammeter referred to is a small recording needle which moves across the face of a scale and shows how much electric current is being used on a motor. Its use in connection with the pug mill, therefore, is simply to tell the amount of current used. If the clay is flowing too freely (an over abundance of water) the needle, of course, will show a minimum amount of current being consumed. If the clay is too stiff naturally more current is registered. By ascertaining at what point on the scale the needle must rest to show a perfect mixture of water and clay in the pugging, the operator need only to see that it remains at that point. Should the needle go to the left, for instance, it would indicate that too much water is being fed and the operator would regulate his flow until the needle went back to the proper spot. If the needle goes to the right of the proper place, not enough water is being fed and the operator would act accordingly. It can be seen, therefore, that the ammeter cannot be used as a counter nor can it be used on a machine or mill not motor-driven. Any electric supply house can supply you with ammeters.

Book on Terra Cotta and Its Uses.

424. *Utah—We notice in your Jan. 6, 1914, number, page 69, that W. D. Gates, secretary of the National Terra Cotta Society, is publishing a book giving full instructions as to the use of terra cotta. We would like to obtain a copy of this and ask for Mr. Gates' address.*

The book referred to is the first serious attempt to collect all the data and information in the use of architectural terra cotta. Because of its comprehensiveness considerable labor is involved in the compilation and despite the fact that nearly a year has been spent by the editors, it is not yet ready for delivery. If you write to William D. Gates, Peoples Gas Building, Chicago, you may get some definite idea as to when the book will be published and its cost.

Manufacturers of Sewer Pipe.

411. *Michigan—I enclose 25 cents for the book, "Sewer Pipe—How to Make It." I have worked six years in the manufacture of sewer pipe and am running a Vaughn press. Can you tell me of any other books that treat on this subject?*

"Modern Brickmaking," listed by our Book Department, at $5 postpaid, contains chapters devoted to the subject of burning, salt glazing and vitrification of clay ware, but in a general way only. There are no known publications on the subject of sewer pipe manufacture other than the book you ordered.

Wants to Manufacture Cement Brick.

428. *North Carolina—(1) Give me the address of headquarters for information and machinery for manufacturing cement brick. (2) Do you believe these brick give satisfaction? I am about to start a small plant, and have no clay with which to make ordinary brick, hence am considering sand lime or cement brick, more especially the latter. (3) Would you advise it? (4) Who has had long experience in making and using cement brick?*

This inquiry comes from Reubin Rink Co., Kernersville, N. C. (1) Copies of the "Cement Era" and the "Cement World," both published in Chicago, will supply this information. (2) Cement brick have not given satisfaction, and their manufacture is limited. They are not inpervous, are not durable and are readily affected by climatic conditions. An ordinary clay, such as is usually found in most localities, while not apt to make the best quality brick, will make one that, as poor as it may be, will be superior to the best cement brick. Why not obtain samples of your soil or clay and send them to some testing laboratory? Quite often an excellent quality of common building brick can be made from the least promising material. (3) We would not advise the manufacture of cement brick under any circumstances as they are not practical and certainly will lead to failure. If you find that your clay is not adaptable to brick, sand lime brick will be preferable to cement. (4) We cannot answer this, because, as has been stated, there is practically no cement brick made in this country. Perhaps some of our readers can answer this question for you. We submit it to them for their attention.

Wants Expert in Brick Drying.

406. *Pennsylvania—Please refer us to some expert engineers who have had experience with steam dryers for drying brick.*

There are several engineers advertising in this journal and their names, together with the machinery manufacturers who maintain expert service in this line, are as follows: Berg Machy. Mfg. Co., Ltd., Toronto, Canada; Clearfield Machine Shops, Clearfield, Pa.; Dodge Mfg. Co., Mishawaka, Ind.; The J. D. Fate Co., Plymouth, O.; Frink Pyrometer Co., Lancaster, Pa.; W. C. Kirkpatrick, Chicago, Ill.; Manufacturers Equipment Co., Dayton, O.; The C. W. Raymond Co., Dayton, O.; Richardson-Lovejoy Eng. Co., Columbus, O.; L. E. Rodgers Engineering Co., Chicago; Schaffer Eng. & Equip. Co., Tiffin, O.; Chas. Searing, Pittsburgh, Pa.; B. F. Sturtevant Co., Hyde Park, Mass.; E. C. Tecktonius Mfg. Co., Racine, Wis.; Trautwein Dryer & Eng. Co., Chicago.

Organization of Phenix Fire Brick Co.

356. *Pennsylvania—About three years ago you made the announcement of the organization of the Phenix Fire Brick Company and the Bolivar Face Brick Company, illustrating the same with photographs. We are anxious to secure a copy of that article. Can you supply us with one? We cannot say definitely what month it was, but it is our impression that the article appeared in the number preceding the meeting of the N. B. M. A. convention in* 1911.

The write-up you mention, together with illustrations, appeared on page 247, No. 4, volume 38, Feb. 15, 1911, issue. We have sent you a copy of this issue, as per your request.

Books on Sand Lime Brick.

416. *Ontario—Have you any books on sand lime brick?*

We know of no books published on the manufacture of sand lime brick, or, at least, none that treat on the subject exclusively, except Bulletin No. 5 issued by the Ohio Geological Survey, Columbus, Ohio. The price is 45 cents. Searle's "Modern Brickmaking," price $5.00, listed with us, contains a brick chapter on this subject, but does not treat it satisfactorily.

Wants Plans for Downdraft Kiln.

407. *Oregon—I would like to have a description or blue print of a down-draft brick and tile kiln.*

Searle's "Modern Brickmaking" says: "The Down-draft kiln, whether circular or rectangular, is the most efficient and satisfactory of all single kilns, yielding the most perfect color and lowest fuel consumption of any intermittent kiln. For many years the most popular form of single down-draft kilns has been circular in shape, but for ordinary brick the rectangular pattern has several obvious advantages and is relatively cheaper to construct. The illustrations show a section and plan of a circular down-draft kiln. For brick, such a kiln has usually ten or twelve fire-holes around its circumference and the hot gases from these rise up through a series of pockets of "bags" towards the top of the kiln, whence they are turned downwards, distributing themselves through the brick in the kiln, and finally passing through the central flue to the chimney. In most down-draft kilns of this pattern the floor is solid with the exception of the central flue, but in some cases a perforated false bottom is added so that the gases may be better distributed against the goods in the kiln. The chimney is usually external to the kiln."

The article on kilns from which the above is quoted, is very exhaustive, and we would suggest your purchasing a copy of this valuable work.

Any expert kiln builder can supply you with whatever information you may require on the down-draft kiln. Because of the many intricate problems that come up in the construction of a down-draft kiln, we doubt the advisability of anyone attempting to erect one without expert advice or aid.

Copyrighted Names on Face Brick.

390. *California—Some four or five months ago the writer read an editorial in "Brick and Clay Record" relative to copyrighted names applying particularly to rough texture face brick. It is his recollection that among the various names suggested which could be protected by trade mark was the word, "Ruftex". We wish to know if this has been copyrighted, as we desire to use it for a new brick which we will be making shortly.*

The word "Ruftex" has been registered in the United States Patent Office, as a trademark, by the Thomas Moulding Brick Company, of Chicago. The same company holds patent office registration on "Corsweve," "Homespun" and "Textur"—the latter printed with the Greek (?) U—as in Brickbvilder." The choice of a name which will be sufficiently near to the quality, color or texture of brick, and still not be descriptive, is a task that requires some thought. Advertising agencies have, almost uniformly, fallen down. The famous "Tapestry" was coined by a salesman in Fiske's office in New York—Hy-Tex by an advertising man. The first is worth a lot of money—the other will live just as long as the advertising keeps it alive. In itself, it means nothing—conveys no thought to the reader. "Brick and Clay Record'" publishes on page 968 of this issue a list of the names that are in common use. Many of them have been registered.

Pamphlets on Silos.

423. *Pennsylvania—Have you any printed matter relative to hollow tile silos? Do you know of any experimental stations that have issued bulletins on this subject?*

We have a pamphlet, which is a reprint from an article that appeared on page 780 of the Oct. 21, 1913 number of "Brick and Clay Record." The title of this is "A Silo—How to Make It Permanent." We shall be glad to quote you prices on this in any lots desired. The Iowa State University has issued a bulletin on the subject of burned clay silos, which is very valuable.

Magazine on Construction.

431. *Pennsylvania—Refer me to some magazine that treats on brick construction work.*

"The Brickbuilder," Boston, Mass., and "The National Builder," Chicago, are all we know of that would interest you. There may be others but they do not come to our exchange table.

Intermittent vs. Continuous Firing.

401. *France—What is the advantage of your American kiln with intermittent fire over the European continuous fire kilns?*

The round down-draft kiln used so extensively by American brickmakers has an advantage in the initial cost. Small plants that could not afford the expensive continuous kiln use this type chiefly for that reason. The continuous kiln, however, is coming into more general use in this country and wherever the output is sufficient to warrant the investment this type is being installed. There is a new type of continuous kiln recently introduced in this country, and whose construction cost is about the same as that of a round-down-draft kiln or similar capacity, and which, its promoters claim, is entirely satisfactory.

Grateless Gravity Feed Fire Boxes.

405. *Georgia—In your July 15, 1913, number you had a very valuable article on the Grateless Gravity Feed Fire Box by Paul Beer. I am installing a kiln of these fire boxes and am in need of a little more information as to dimensions. If you will look on page 181 of the number mentioned and note "Section Through Fire Box," you will see that there are no figures given showing the distances. If you can furnish me with this information I believe I will equip our entire battery of kilns with these boxes.*

We advise you to communicate with Mr. Beer, care the Grateless Furnace Co., Des Moines, Ia. He is the inventor, patentee and manufacturer of this fire box and undoubtedly can assist you. We judge from your letter that you are installing this fire box without consulting with Mr. Beer and inasmuch as the box is patented, it probably will be wise to obtain his permission.

Number of Brick Manufacturers.

408. *New Jersey—Can you tell me approximately how many building brick manufacturers there are in the United States and the average number of shades of brick each one makes?*

There are about 4,500 manufacturers making common and face brick and the face brick manufacturers make on an average of 20 shades.

Wants Test on Clay.

420. *Texas—We are expecting to put in a brickyard and have been trying to get a test on our clay so we may be sure of what it will do before going ahead, and we want to know where we may send a sample independent of any machine company.*

Testing laboratories are conducted by the ceramic departments of the Kansas University at Lawrence, Kans., the University of Illinois at Champaign, Ill., the Ohio University, at Columbus, Ohio, the New Jersey State College, New Brunswick, N. J., New York State College, Alfred, N. Y., and by all other schools that have similar departments. Robert W. Hunt & Co., Chicago, are testing chemists and would give you an unbiased report. Any of the brick machinery houses also would make a careful test. At least 1,500 pounds of clay should be sent to obtain a commercial test.

Government Report on Brick Roads.

425. *Missouri—Can you give me any specific information as to where I can obtain the report of the Department of Agriculture on public roads, which has just been issued and which treats of the merits of brick as a road-building material?*

Write to Josiah H. Brinker, acting superintendent of Documents, Washington, D. C., and ask for Agriculture Bulletin No. 23. They are 10 cents each.

Books on Producer Gas.

422. *Ohio—Can you give us the names of the best books on gas producers and the use of producer gas in burning clay ware?*

There are four books listed by our Book Department on this subject, namely: "Gas Engines and Producer Gas Plants," $2.50; "Power Gas and the Gas Producer"; "Producer Gas",

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by Dawson and Lawter, $3; "Producer Gas and Gas Producers", by Wyer, $4. However, since these books were written there has been a great advance in the use of producer gas and they are practically worthless today. We do not advise the purchase of any one of these, and cannot refer to any other books that are any better.

Books on Fireplaces.

413. *New Mexico—Is there any literature treating on the construction of brick fireplaces and mantels? I want some designs for mantels. Also are there any publications devoted to the construction of brickwork?*

We know of no magazines or books published in the interests of mantel construction, nor are there any magazines devoted exclusively to brick construction.

Book on Silo Manufacture.

223. *Pennsylvania—In your answer to 223 Washington, March 18 number, we note you are printing in pamphlet form an article on silos. We would like to get all the information we can on brick silos and if you publish anything, giving plans and specifications for building them, we would like to have it.*

The article mentioned appeared in the Oct. 21, 1913, number of "Brick and Clay Record" and is entitled, "The Silo—How to Make it Permanent." Working plans are given and all the necessary figures for the roof and other construction details.

Wants Book on Burning.

409. *Ohio—What book on burning drain tile do you consider the best? I can never get the bottom of my kiln to look like the top.*

"Modern Brickmaking," by Searles, contains some most excellent advice on burning. This book is listed by our Book Department at $5 postpaid.

Letters on Salesmanship.

382. *Texas—Several months ago the writer noticed in "Brick and Clay Record" mention of some sales letters in connection with the brick industry. Can you advise us where to get some intelligent sales letters?*

This magazine has had several articles on the subject of "Salesmanship" in the past year, and at one time ran a series of ten articles on the same subject. We do not recall, however, publishing any letters and if you will make yourself more explicit, we shall be glad to give you whatever information we can.

Automatic Counters.

400. *Ohio—Can you tell us where we can buy a suitable automatic counter to place on an automatic drain tile cutter so as to get the count of the number of tile we make in ten hours? We expect thereby to place some of our men on piece work.*

The only manufacturer which we know making an automatic counting machine is Chambers Brothers Company, Philadelphia and Chicago. We are bulletining your inquiry to all the manufacturers of machinery.

Preheating of Clay.

438. *Missouri—We have been advised that you have printed an article by some one engaged in the technical end of the industry with reference to preheating clay before it is made into brick with the object of reducing or eliminating the shrinkage after having been made by the stiff mud process.*

I have looked through all the old numbers of your magazines but fail to find such an article.

We have printed several articles on this subject. Prof. A. V. Bleininger, of the U. S. Bureau of Standards, Pittsburgh, Pa., having given us some very valuable contributions. The result of his experiments has also been published in bulletin form by the Government and can be obtained by writing to the Department of Commerce and Labor asking for Bulletin No. 1. Technologic Papers Bureau of Standards, "The Effect of Preliminary Heating Treatment Upon the Drying of Clays," by A. V. Bleininger.

Permanency in Road Construction.

418. *Maryland—We are very much interested in the article by Iverson C. Wells on "Permanency in Road Construction" that appeared in the "Manufacturers Record" and other journals recently, and would like to have the location of the Holland road referred to so that when we refer to these wonderful examples of brick paving we may be in a position to state their exact position.*

The road is the main road to the Hague. The United States Government Office of Public Roads made the photograph you refer to and probably will supply you with copies by the payment of the cost, as several of our people have secured copies in a similar way.

Best Coal to Burn Brick.

384. *North Carolina—What is the best coal to burn brick with? We have up-draft kilns 28 ft. wide inside with eight ft. grates. Would it be best to water-smoke with a smokeless coal or wood and burn with a long flame coal or would it be best to use a smokeless coal both to water-smoke and burn with? We do not care for a chemical analysis of brick coal.*

The best type of coal to burn brick with is most certainly that which is capable of producing the longest flame, other things being equal. If you have wood available as fuel, use it during water-smoking; if you are not able to use wood, a smokeless coal is next best. In any case the long flame should be used to burn the kiln.

Amount of Brick on Each Foot of Ground.

375. *Tennessee—What do you consider a fair estimate of the amount of brick to be obtained from each foot on an acre of clay, standard size brick?*

Any estimate would be pure guess work. If we knew whether you meant common or pressed brick, and had a chemical analysis of your clay, we might hazard a guess that would not be far from right.

Wants Name of German Manufacturer.

355. *Oregon—I am interested in the T. W. Garve report of the Leipzig Exposition in the Jan. 6 number of your magazine and would like to know the name of the manufacturer of the machine described under Fig. 9.*

The machine referred to is manufactured by C. Keller & Co., Laggenbeck, Westf., Germany.

Cedar Rapids Concrete Failure.

414. *Illinois—Where may we obtain information concerning the Cedar Rapids, Ia., concrete failure?*

An account of the Cedar Rapids Iowa concrete failure appeared in several of the engineering journals at the time. We recall particularly a very exhaustive investigation made by the Engineering News, and Engineering Record, as well as several other publications of like nature.

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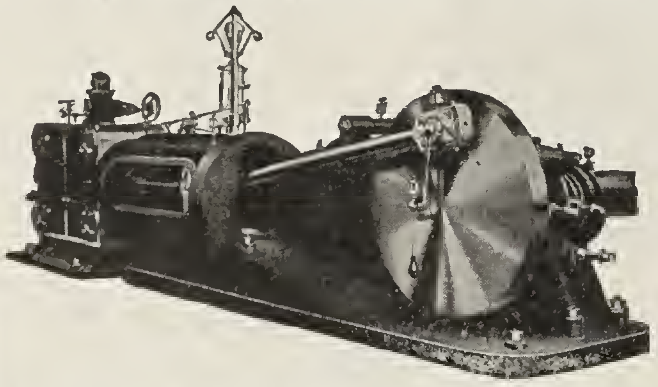

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Freight Tariffs

Brickmakers in that part of Pennsylvania which takes the same base rate as do Watsontown, Milton, Newberry, Ralston, Sunbury and Williamsport, Pa., have been asked to join in a co-operative movement; this time it is for the purpose of securing a reduction in the freight rate on common building brick from the cities mentioned, to western points—Chicago particularly. From September 15th, 1911, to January 15th, 1914, the rate was $2.65 per net ton, but at the date last mentioned, it was advanced to $3.60—a raise of 95c a net ton, or nearly $3.00 per thousand brick. This advance closes the Chicago market and all markets to which rates are based on Chicago, so far as the manufacturers in this district are concerned, and this may be said of all brick plants situated east of a line drawn from Buffalo, N. Y., through Erie and Pittsburgh, Pa., to Huntington, W. Va., so far as the shipments of these plants into C. F. A. territory is concerned.

C. F. A. territory includes all points west of the Buffalo-Erie-Pittsburgh-Huntington line, north of the Ohio river and east of the Mississippi.

Changes in freight rates, as they affect brick, fireproofing, hollow-tile, etc., and which have gone into effect since those published in the last issue, are as follows:

From Eastern Points.

From Black Rock, Buffalo and East Buffalo, N. Y., Brick, common, to Arkport, Burns, Morain, Rogersville and Stony Brook Glen, N. Y., $1.00 per net ton; to Bolivar, N. Y., $1.25 per net ton; to Canasrega, Hornell and Swains, N. Y., 90c per net ton.

From Bradford, Pa., and Olean, N. Y., Brick, clay and clay products, to Woodstock, Woodville and Woosung, Ill., $2.90 per net ton; to Wykels, Ill., $2.45 per net ton; to Youngstown, Iowa, $2.90 per net ton.

From Braytonville, Mass., Brick, to Pittsfield, Mass., 60c per net ton.

From Lorillard, N. J., Brick, salt-glazed, building, common, front, hollow, stack, chimney and sand-lime, fire brick, building tile, fireproofing and articles taking same rates, to Pearl River, N. Y., $1.70 per net ton.

From North Boston, Dubois, Clay Switch and Sykes, Pa., Brick, building, common, fire, hollow and pressed, clay conduits and fireproofing, to Alton, Ill., $2.80 per net ton; to Annawan, Atkinson, Burlington, Clinton, Davenport, Dubuque, East Burlington, East Clinton, East Dubuque, East Fort Madison, East Hannibal, East Keokuk, East Louisiana and Fort Madison, Iowa, $2.90 per net ton.

From North Mountain, W. Va., Brick, to Caples, Md., $1.05 per net ton.

From Olean, N. Y., Brick, to Arcade, N. Y., 80c per net ton.

From Port Reading and Woodbridge, N. J., Brick, common, paving, building, chimney, fire, front, hollow, pressed, etc., to Wilmington, Del., $1.45 per net ton.

From Sumter, S. C., Brick, common, to Wilmington, N. C., $1.49 per M. brick.

From Wilmington, Del., Clay, to Spring Hill, Pa., 90c per net ton.

From Winslow Junction, N. J., Brick, to Philadelphia, Pa., $1.30 per net ton.

From Middle West Points.

From Campus, Ill., Brick and articles taking same rates, to Manhattan, Ill., 65c per net ton.

From Chicago, Ill., Brick (except bath and enameled) fire clay and common building tile, to Raton, New Mex., 35c per cwt.

From Findlay and Ottawa, Ohio, Brick and articles taking same rates, to Griffith, Ind., $1.40 per net ton.

From Hamilton, Ill., Brick and articles taking same rates, to Hannibal, Mo., $1.00 per net ton.

From Menominee and Tramway, Wis., Brick, clay and clay products, to Albert Lea, Minn., 8c; to Faribault, Minn., 7.3c; to Farmington, Minn., 6.5c; to Graettinger, Iowa, 10c; to Northfield, Minn., 7.3c; to Osgood, Spirit Lake and Wallingford, Iowa, 10c per cwt.

From Peoria, Ill., Brick (except bath and enameled) fire clay and common building tile, to Raton, New Mex., 32c per cwt.

From Spring Valley, Wis., Brick, clay and clay products, to Duluth, Minn., 6.1c; to Minneapolis, Minnesota Transfer, St. Paul and Stillwater, Minn., 4c per cwt.

From Western Points.

From Colorado Springs and Denver, Colo., Brick, to Burlington, Colo., 9.75c per cwt.

From Gallup, New Mex., Brick (common) to Magdelena, New Mex., 14c; to Socorro, San Antonio and San Marcial, New Mex., 12c; to Los Lunas, New Mex., 10c per cwt.

From Heron Lake, Minn., Brick, clay and clay products, to Esterville, Iowa, 7c; to Graettinger, Iowa, 8c per cwt.

From Pueblo and Canon City, Colo., Brick, enameled, fire, glazed, hollow, ornamental, paving, etc., to Las Crusas, Rincon, Magdelena, Socorro, Belen and Albuquerque, New Mex., 27c per cwt.

From St. Louis, Mo., Brick (except bath and enameled) fire clay and common building tile, to Raton, New Mex., 30c per cwt.

From St. Louis, Mo., Brick, building and paving, (except bath and enameled) to Springfield, Mo., 8.5c per cwt.

Statistics on Freight Traffic.

"Dry as statistics" is a common phrase, yet here are statistics that read like a story because they tell the romance of American transportation. Professor Frank H. Dixon, of Dartmouth College and Chief Statistician of the Bureau of Railway Economics, says of this treatise that he knows of no work that throws more light upon the development and operation of railway operation than this. Not mere figures are given, but the why and how of the statistics, and one who reads this treatise may garner much valuable information concerning Railway Mileage, Equipment, and Capitalization, as well as Revenues, Expenses, and Traffic. The treatise is one of a series of publications forming the basis of the LaSalle Extension University course of instruction by correspondence in Interstate Commerce and Railway Traffic.

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A tract of land containing fifteen acres, owned by the Collingwood Brick Company of Toledo, Ohio, has been offered to the city by the Collingwood company, as a playground for children. The brick company offers the free use of this property for twenty years, solely for the purpose already mentioned, and in consideration of the city's compromising a suit for sewer assessments, which it had brought against the Collingwood company.

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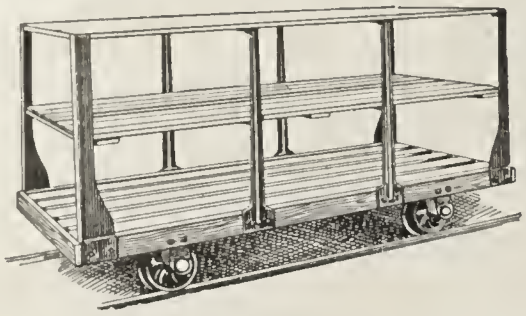

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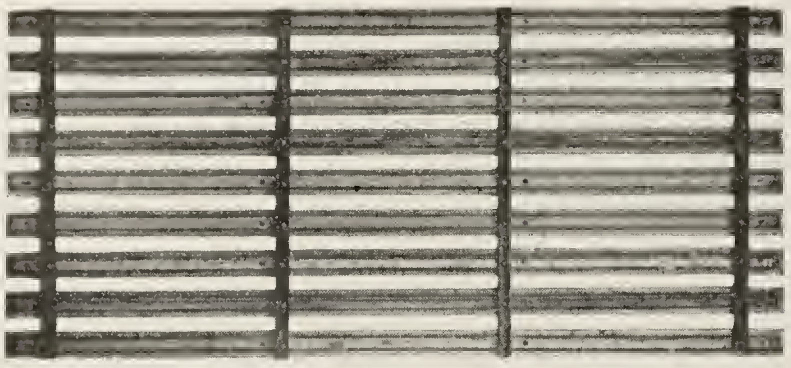

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The Letter Box

(*Continued from page 938.*)

to anyone who had a brick "equal" to that shown—providing that it met with the approval of commission and architect.

There were two concerns competing with the writer for this order, and the following shows the methods employed:

The representative of one house called upon the architect and submitted a brick for the operation, which he thought was "equal" to the brick shown, and in the writer's opinion it was, but the price mentioned could not be met, and he gracefully withdrew from the competition, stating, however, that the brick "shown" was a first-class one in every respect, that no fault could be found with it, and that the price was exceptionally low for material of that quality. That was the competition of a gentleman and a salesman of intelligence.

The representative of the other house used different methods. His idea of the way to obtain an order was to disparage the quality of his competitor's material, to belittle the factory where his brick was made, its capacity, management, and methods of doing business. He brought a brick, taken from the refuse pile of a building erected nearly a year ago, dirty, chipped and weather-stained, and submitted it to the architect as a fair sample of what would be furnished if the writer obtained the order. When he was asked how he knew or could prove the truth of his statements, he had to admit that he really did not know anything at all, either of the quality of the material, management or capacity of the plant.

If his methods of "knocking" had not prejudiced his case, his admission that he was falsifying, did not improve his standing. Needless to say neither his brick nor his methods were approved. Failing to impress the commission or architect, recourse was made to the contractors to induce them to have a change made, and the inducement was offered to sell them "on any terms that you want to make," if they were successful, but with no result.

The writer obtained the order—and, if at any time was in danger of losing it, the opposition, if any, was overcome by the crude and ignorant methods adopted against him.

Unfair competition practically has disappeared in all other industries and the clayworker, alone, is depending upon the same cut-throat methods in use 25 years ago. The tendency of the times is to be honest. The business man, the last to recognize the worth of that old axiom—"Honesty is the Best Policy," is falling into line, and the clayworker must sooner or later do so.

The popularity of "the Open Price Policy Standard" in all industries and the growing interest in it among the clayworkers is a good sign. The dawn of a time when even brickdealers and manufacturers will resort to only honest methods is near and the salesman who will employ the tactics described by Mr. Condon will be very much isolated.

"It Pays to Advertise."

B. W. Figgins, of 410 N. Pulaski St., Baltimore, Md., writes:

> Relative to the article which you have carried for the past two editions of your magazine, requesting that various firms and individuals send me information for the complete erection of a plant, I wish to express my thanks to you. I am very glad to say that I have been the appreciative recipient of sufficient information to make up for a portion of that part of the field that I did not know. As my purpose has been accomplished with your kind aid through your magazine, I might ask that further requests for appliances in my behalf be withheld. I am very appreciative of the courtesy you have extended to me, and as soon as I get in proper position I am sure that your kindness will result profitably to the clay world.

English Versus American Methods.

We have a very promising communication from Tom Beresford, 2236 Seminary Avenue, Chicago—promising, because it is apt to stir up some discussion in this department and thus bring forth some valuable contributions on the subject he mentions. His letter follows:

> I was much interested to see in your last number that at the recent American Ceramic Society at Wheeling, W. Va., among the subjects brought up for discussion was one by Ernest Mayer, of Beaver Falls, Pa., on the comparison of English glazes as against those used in this country.
>
> There are many methods adopted in the United States that are quite different from those employed by the English potter. This is true, not only with the glazes but also in the grinding of potters' materials—flint, spar, whiting, Cornwall stone and the sliphome methods of putting up the formulaes and saggers,

in general ware and the methods of firing, which are all different.

As a matter of fact in nearly all departments of a pottery plant in the United States the methods employed are entirely different from the English methods.

Mr. Beresford is an English potter of established reputation and was very free in his criticisms of American methods in recent conversations with the editor of this magazine. He maintains that the Americans are very much behind British potters and that they are losing many great opportunities for capturing trade.

The Way to Promote Burned Clay.

As a proof that "There is a 'masoury' in burned clay aside from that which has to do with lime and sand," T. A. Gottschalk, a drain tile manufacturer, of Berne, Indiana, writes:

> I have just learned that the village of Markle, Indiana, is contemplating building several paved streets this season. They are to be built under the "three mile road law" of Indiana, the township to pay the amount of the cost of an ordinary macadam road and the village the amount of the cost of the more permanent pavement. They are now trying to decide on what kind of pavement to build and the County Commissioners have appointed two men, who have gone to Detroit, Mich., to investigate the Wayne County cement roads. I have not been able to learn the names of these two men, but am informed that they will have the naming of the material to be used. I believe that their names can be secured by writing to the Commissioners of Huntington County, Huntington, Indiana. It may be well, also, to write to Julius Yoos, an influential merchant in Markle, Indiana. I believe brick can be sold on these streets, if proper information is given to these people, and would suggest that you secure the aid of the National Paving Brick Manufacturers' Association, besides forwarding any information that you may have on hand, demonstrating the superiority of brick to all other kinds of paving material.

Copies of "The Truth About the Wayne County Roads" and "Concrete Streets in Chicago a Failure" have been sent to the County Commissioners at Huntington, Ind., and copies of "Brick and Clay Record" containing Governor Glynn's strong presentment for brick. The National Paving Brick Manufacturers' Association will also take an active interest in the matter. We want to call the attention of every clayworker in the country to this splendid example of the growing reciprocity in the craft. Mr. Gottschalk is neither directly nor indirectly interested—he neither lives in Markle, nor does he make paving material. But he does what he can for burned clay, because he believes in it. This is the spirit that will bring burned clay into its own.

Some Conclusions Reached by a Cement Man.

L. T. Crabtree, of Crandon, Wis., sends us a clipping from a Milwaukee, Wis., newspaper of an address made by Alfred Owen Crozier, of Cincinnati, Ohio, before the Engineering Societies of Milwaukee. The "facts" regarding brick are, to say the least, illuminating. They follow, in part:

> While clay brick tends to speedily disintegrate when used for sewers, walks and foundations, wet process concrete brick and blocks continue to harden indefinitely by absorbing additional hydrogen from the moisture of the ground. For the same reason clay paving brick and blocks are not as well suited as cement concrete for paving streets and highways, or for sidewalks. If such clay products happen to be made of exceptionally uniform clay containing iron, silica, alumina, magnesia, etc., in exact scientific proportions, a condition that seldom obtains, and the brick are completely and perfectly vitrified throughout, a result rarely accomplished, the product will be of high quality, very serviceable, and the time of its ultimate disintegration much postponed. Every brick can not be tested, and many latent defects can not be detected with the eye. There is such a variation in brick and the clay of which they are made, even in different shipments from the same yard, that the purchaser more or less must assume the risk and take his chances. Vitrified clay brick for paving are chiefly urged because of their ability to withstand abrasion, or the wear of the vehicles of traffic more than for their successful resistance to destruction by the elements.
>
> This advantage in favor of vitrified brick will disappear when streets and highways are surfaced in a scientific manner with a properly made special cement concrete. This can not be made on the job, in the usual way with common materials and the poor labor and supervision generally available. The ruts, cracks and imperfections found in the surface of some concrete roads are easily avoidable. In every case they are due to poor sand, bad cement, imperfect mixing, careless work or supervision. If there is any such a thing anywhere as one piece of artificial stone of such uniform density and hardness that it will wear as well or last longer than clay paving brick,

Koppel Cars

V Shape Cars
Portable track; switches
Let us quote you
Have you our catalog?
Offices: New York Chicago
Pittsburgh San Francisco
Agents for Canada:
Canadian Fairbanks-Morse Co.
Montreal, Toronto, etc.

Plant:
Koppel, Pa.

ORENSTEIN-ARTHUR KOPPEL CO.

LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA. AND CHICAGO, ILL.
LEHIGH PORTLAND CEMENT
CAPACITY 2,000,000 BBLS YEARLY

Paving Contractors
who use Lehigh Portland Cement for base, filler and grout on all brick paving work
Know Exactly What the Results Will Be
They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.
Lehigh Portland Cement Co.
Main Office - - Allentown, Pa.
Western Office - - - - - - - - Chicago

UNIFORM BURNS, FOLLOW
EVENLY MIXED CLAY

Economical

Saves Labor and lowers percentage of off-color and second quality ware.

Efficient

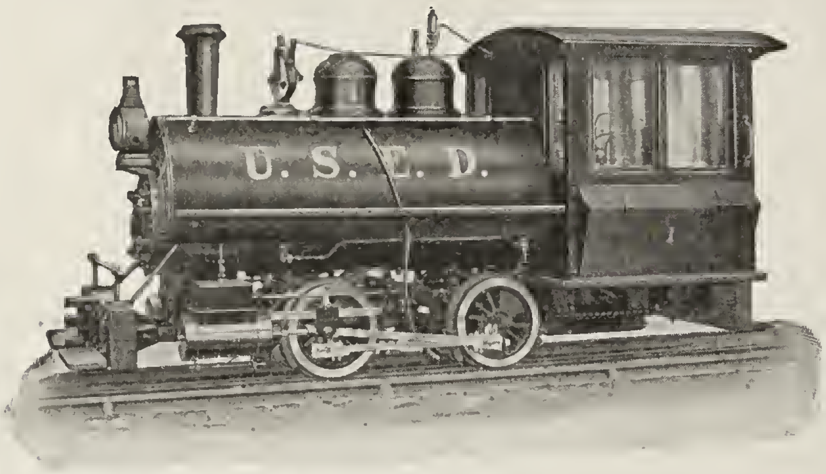
Works just as hard day after payday as day before. Takes no holidays.

THE RUST
Clay Feeder

Insures an Even Mix of Clay and Makes a Right Start toward a Perfect Product.

MARION
MACHINE, FOUNDRY & SUPPLY COMPANY
Box 395
MARION, IND.

CLAY HAULAGE
Reduce costs of transportation by using a
Davenport Industrial Locomotive



Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Cheaper Than Horse Transportation

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars

Davenport Locomotive Works
DAVENPORT, IOWA

Branch Offices

St. Louis: 654 Pierce Bldg.
Chicago: 12 and 14 So. Canal St.
Seattle: 617 Western Ave.
St. Paul: 1308 Pioneer-Press Bldg.
New York City: 362—50 Church St.
New Orleans: 208 Godchaux Bldg.
Pittsburgh: 405 Oliver Bldg.
Montreal: 286 St. James St.
Winnipeg: 45 Canadian Life Block
Vancouver: 175 Cordova St.

and no doubt that there is, then every piece of concrete made would be equally dense, hard and strong, if made of the same materials in precisely the same way. That is axiomatic.

In view of the lamentable experience Chicago has had with cement pavements, the undoubted failure of the much vaunted "Wayne County Roads" in Michigan and the unqualified endorsement given brick pavements by Governor Glynn of New York, in his recent message to the Legislature of that state, it would appear that Mr. Cozier was "whistling to keep up his courage" in making the statements he has made regarding brick. It would be interesting to know how these statements were received by the Engineering Societies of Milwaukee.

Has Fine Clay In Tennessee.

Peter Zechini, general manager of the Italian Blue Gem Coal Company, at Newcomb, Tennessee, writes as follows:

> We would like to be put in touch with some one who would be willing to come in and develop the clay deposit which we have here. Mr. L. D. Morris, a practical clayworker and superintendent of many years' standing, and who has been in charge of a large plant in Denver, Colo., says that our clay is the best he has ever seen; J. H. Houck, of Springfield, Ohio, has been on the ground and says that there is more and better clay in this deposit than he has ever seen in one place before; H. B. Downing, of Atlanta, Ga., another practical clayworker, has told us the same thing, and has assured us that with it, we can make any color of terra-cotta that the market calls for. The C. W. Raymond Company of Dayton, Ohio, has tested the clay and tell us that it is of good grade and practical for all kinds of terra cotta. This is a great chance for some company that would come in and put up a plant. Correspondence is invited.

Tecktonius Kilns Successful in Alabama.

A letter recently received by the E. C. Tecktonius Mfg. Co., of Racine, Wis., from the Alabama Brick & Tile Co., of Hollywood, Ala., expresses so much satisfaction with the Tecktonius kilns, that it is printed in full:

> We are pleased to state that your kilns are giving us entire satisfaction, effecting a great saving in fuel, besides delivering a very high percentage of marketable ware. The construction of the underground flues and blind bottom is such that the heat is evenly distributed over the kiln without the use of dampers. If one does not get good results with these kilns, it is the fault of the material or burner, and not of the kilns. Our kilns were built before you designed the up and down draft type, and we are sure that even greater results could be secured with them. We could not say too much in praise of your Band Fasteners as they are the best we have ever seen. We used home-made fasteners on our first kiln and had to rebuild it in three years. We could not be persuaded to buy anything other than the "Tecktonius." We shall take pleasure in answering any inquiries relative to your kilns or lugs.
>
> Yours very truly, ALABAMA BRICK & TILE CO.

No better advertisement can be given than the praise of a satisfied customer. Truly, he is the man who knows.

Has Found a Good Clay Deposit.

E. Stanley, of 561 West Forty-fourth Street, New York, writes as follows:

> Have been advised to ask from you a copy of your publication on clays. I desire to get in touch with people interested in a new clay find said to be very valuable for many uses. If you have anyone in mind, who would like to have a sample for analysis, will you please let them have my address?

Our correspondent does not state what part of the country this new clay find is in, but we publish his letter, trusting he will be able to enter into a correspondence that will prove mutually valuable to him and to those that write him.

Intends to Put $400,000 in Brick Plant.

An optimistic note runs through the letter received from Walter G. Roland, of Reading, Pa., who writes under date of April 6. He says:

> Find check enclosed for $2. I am just out trying to raise $400,000 and am going to place it all in the only business in the world—brick. Money is all going out at present. Do I read "Brick?" Assuredly I do.

As has been pointed out in previous issues of this journal, the day of the big brick plant is at hand. Ellis Lovejoy's speech at Wheeling, W. Va., was based on facts that stand out in bold relief.

Prize Problems

A Series of Problems That Are Submitted to Our Readers and a Reward Given for the Most Practical Solution

In the December 2, 1913, issue, "Brick and Clay Record" inaugurated a "Prize Problem" contest, in which a three years' subscription is given for the best answer to each problem. Six of these problems have already been disposed of, and the prize-winning answer to the seventh is printed below. Problems Nos. 8 and 9 are offered for your consideration and will be followed by No. 10, which will appear in the next issue.

PROBLEM NO. 8.

What would you do if you operated a brick plant in a small town whose homebuilders insisted on using lumber and concrete construction?

Send in your answer to Problem No. 8 so it will reach us before April 25. Address your letter to Prize Problem Contest Editor, "Brick and Clay Record," Chicago.

PROBLEM NO. 9

What would you do if you were manufacturing face-brick and depended upon certain cities within a radius of 100 miles from your plant to take the greater part of your output and pay you a price that enabled you to make a lower yard price to dealers in more distant markets, and, the demand in one or more of these nearby cities having fallen off quickly, the dealers told you your prices were too high. What would you do?

Send in your answer to Problem No. 9 so it will reach us before May 6. Address your letter to Prize Problem Contest Editor, "Brick & Clay Record," Chicago.

Answers to Problem No. 7.

E. H. Bradley, of Layton, Pa., is awarded the prize for the best answer to Problem No. 7, which was:

What would you do if you had a competitor in your district whose labor, power, fuel and shipping conditions were better than yours, and who, despite his opportunities to obtain a greater profit by maintaining fair prices, insisted on placing his prices below what you yourself could sell for at a profit?

Mr. Bradley's answer has all of the earmarks of a youthful enthusiasm, although his years show him to be nearing the twilight. It reads:

I would go to that competitor and offer him my plant at the lowest figure I could afford to take, at the same time explaining to him that I would like to stay in the business and that my doing so would help him to get a larger margin of profit than he was now getting, if only by setting a mark at which he could aim. But if he remained obstinate, I would put this old brain to work and study out something else that I could make, instead of what I was making, and in addition to that, I would look around for some idle capital that I could interest in a new, up-to-date plant. I would use my competitor's ability to make better prices and still reap a profit, as a leverage for the securing of this capital. I have followed that line for 50 years and am still on deck, at 75 years of age, and ready to embark in any new deal that looks reasonable. My motto is: "Don't give up the ship."

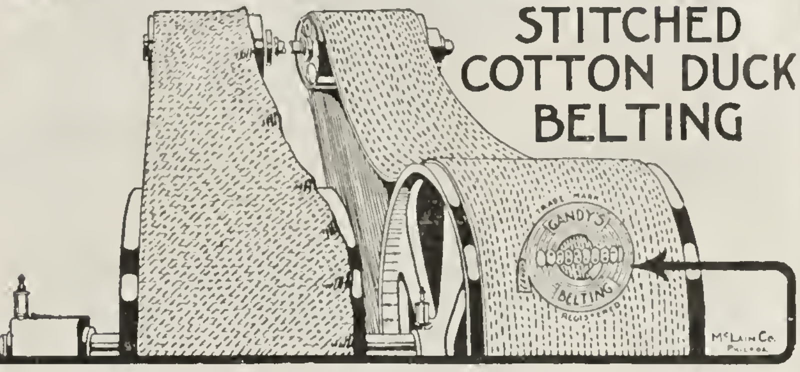
M. R. Watson, of Danville, Va., sends in the following:

In this case, your only argument is in the product itself. See your competitor's product and find the fault in it, making enough improvement in your own to offset his advantages. If he is making common brick, you make face brick, or vice-versa. The firm with which I am connected, sold a large order of brick some time since, by stacking our brick alongside a stack of brick made by a competitor. On account of the size of our brick, we made the larger stack, and yet, by actual count, there were only 9 brick in our stack to every 10 in our competitor's. This overcame his lower price without detriment to the buyer.

The latter solution shows good judgment and good salesmanship. While the idea of finding a fault in your competitor's product is not always a good plan—"people who live in glass houses shouldn't throw stones," things that seem like natural advantages, often times turn out to be the covering up of natural disadvantages, and this, of course, is the opening for wide-awake salesmanship.

GANDY

STITCHED
COTTON DUCK
BELTING



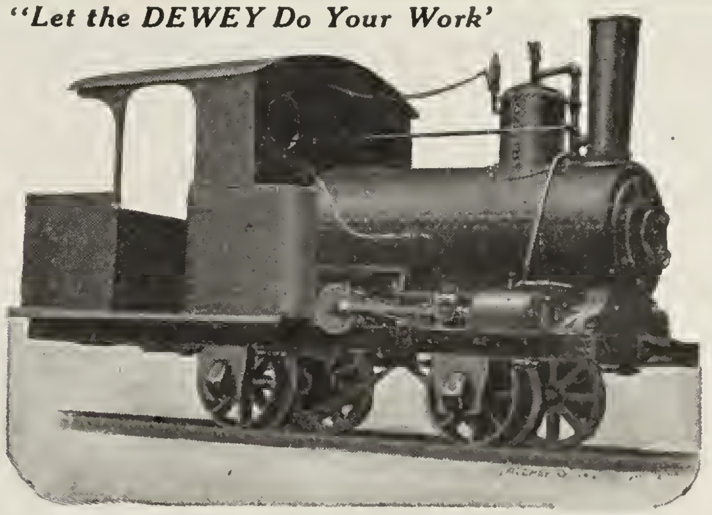
Will Not Stretch or Harden

Every Gandy Belt is carefully stretched on our own stretching frames and thoroughly seasoned for months, before it leaves our factory. In consequence, Gandy Belts stretch little, if any, in years of service, and the belt edges are always straight and true.

The careful stretching and seasoning—the high quality of material—the imbedded stitch running lengthwise of the belt—the special treatment which makes the belt water, heat, and steam-proof—these are a few of the reasons for the unqualified success of Gandy Belting for over 35 years. Gandy Stitched Cotton Duck Belting costs about one-third as much as leather, much less than rubber. A large stock of seasoned belts always on hand, enables us to fill most orders the same day. Send for a free sample of Gandy Belting and the testimonials of satisfied users.

The Gandy Belting Company
732 W. Pratt Street
BALTIMORE, MD.
New York Office, 88-90 Reade St.

"Let the DEWEY Do Your Work'



The Boiler of the DEWEY

The Borden Brick & Tile Co., Goldsboro, N. C., is using a DEWEY locomotive. It discarded the mule-driven car and declares it not only got an increased efficiency but reduced the cost of hauling.

This concern hauls eighteen cubic yards of clay to a load on a trip of one and a half miles.

How many mules would it take to do this same thing and how long would it take them to do it?

It is our own special design. It has unusually large capacity, is a quick steamer, and is economical in fuel consumption.

These three characteristics have made the DEWEY especially adapted to clay pit work.

Strong, Safe, Long-Lived

The DEWEY boiler is designed to reduce to a minimum the numerous angles and corners and pockets which serve as collecting places for mud and scale—distressing features about every standard locomotive boiler.

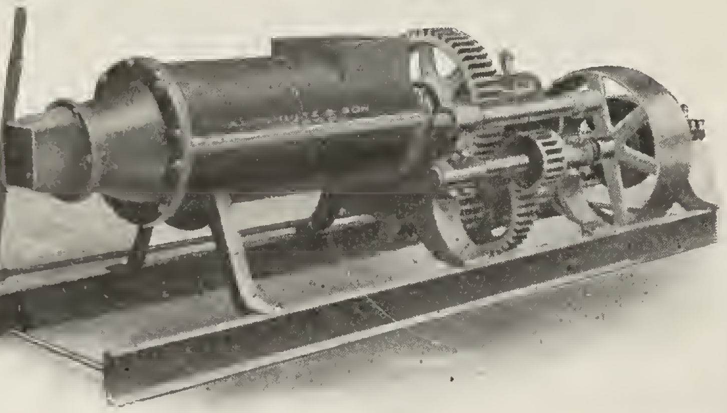
The DEWEY boiler, therefore, is stronger, safer and longer-lived and does BETTER work than the regular types.

The DEWEY sells for several hundred dollars less than any of the standard type locomotives of the same size and weight.............. $1200

DEWEY BROS.
Goldsboro, N. C.

The "Martin" BRICK MACHINERY
Modern YARD SUPPLIES
Soft-Mud or Stiff-Mud Processes
Get Our Plans
Dry or Wet Grinding Pans
Barrows and Trucks
Disintegrators
Clay Cars--Dryer Cars
Hoisting Drums
The Henry Martin Brick Machine Mfg. Co.
GET MARTIN PRICE LIST
LANCASTER PENNA. U. S. A.
GET OUR BIG CATALOG

SCHULTZ EQUIPMENT
For Brick, Tile and Terra Cotta Plants
We make a specialty of designing and furnishing complete machinery equipment for all kinds of clay-working plants, including expert engineering service in supervising erection and installation.



Double Pug Mill equipment, especially designed for the perfect preparation of material in the manufacture of terra cotta.

SCHULTZ HEAVY DUTY FRICTION CLUTCH
suitable for all purposes. If you are having clutch trouble, write to us and we will show you the way out of your difficulties.
Complete brick plants furnished promptly, including auger machines, pug mills, clay cars and granulator shafts.
Cutting and cut steel gears always in stock for brick machines, also granulator knives.
Remember, we are brick works engineers and will be glad to advise you regarding any improvements or repairs which you contemplate.
A. L. SCHULTZ & SON, 1675 Elston Ave., Chicago
Telephone Monroe 1629
We also make a complete line of Power Transmission Appliances, Engines and Boilers.

Pottery

Not in a score of years has the domestic pottery business been so active and encouraging as is this year. The buyers have been unable to get deliveries on time, and have been making frequent trips to the plants to make an effort to get shipments hurried along. In the face of the reduced tariff on pottery, one would naturally suppose that larger volumes of imported wares would be sold in this country, but the reverse is just the fact. Imports of china and earthenware for the last few months, or since the tariff was taken off or reduced are less than for many years. The stiff fight that the domestic pottery manufacturers put up to have old schedules retained on the tariff, did not avail, and both workers and manufacturers feared the worst with a reduction staring them in the face. But while other lines of industry have suffered because of tariff reductions, the pottery game has prospered.

In order to take care of this remarkable volume of business, several manufacturers have started to increase capacity of plants. The Standard Pottery Company is erecting two additional kilns at its No. 2 plant, at East Liverpool, Ohio, and three kilns are to be added to the plant of the Salem China Company, at Salem, Ohio. This latter concern is controlled by the Standard interests in East Liverpool. There is only one idle pottery in the western domestic territory, and this is the Globe Pottery, which has been concerned in more or less litigation of late. It is currently reported and not denied that a going pottery concern in East Liverpool would like to take over the plant, and may do so ere the season is ended. It is also said that Thomas V. Milligan and several business associates in East Liverpool had a deal pending to buy the Globe property and convert the shop into a sanitary pottery. It is not likely that this deal will go through, from all that can be learned now.

J. T. Smith, vice-president of the Smith-Phillips China Company, at East Liverpool, Ohio, announces that the East End Pottery would expend the sum of $14,000 in improvements and additions for which ground has just been broken. The city, at the company's request has placed an alley thirty feet west of the present factory site in order to make room for a one-story brick addition 30 by 95 feet in dimensions. The Smith-Phillips company has donated to the city a similar tract of land adjoining the old alley. The addition to the pottery will cost $3,000 The boiler will be moved into the building when it is completed. Room will also be available for storage purposes, and for a new mold shop. Three new jiggers will be installed. When the addition is completed, work will be started in making all pottery flooring of concrete instead of wood. The clay shops will be remodeled, and the jiggers will be placed in the center of the rooms instead of at one side. New sliding stove rooms will be installed. It is also planned to erect one new glost kiln, and two new decorating kilns. The company will not cease operations in any departments in order to make the improvements, but will carry out the work without disturbing business operations.

Among the commodities in which there have been sharp price advances since the tariff was reduced by the Underwood-Simmons bill is China clay extensively imported for potteries. While the duty on China clay was reduced $1.25 a ton, manufacturers are paying 50 cents a ton more. Pottery manufacturers under the previous tariff law, paid a duty of $2.50 a ton on this material. The tariff was reduced to $1.25. Instead of allowing the consumers to be benefited by the reduction, not only have producers of this clay increased their price, but also ocean transportation companies have taken advantage of the difference of $1.25 a ton by adding 50 cents a ton to the freight charges. Manufacturers recall that champions of the Underwood bill promised that the reduced tariff duties would mean reduction in prices of raw materials. As a matter of fact the increased price of the producer and the higher freight charge makes the clay cost 50 cents a ton more than before the duty was cut in half. Oxide of cobalt, also used by potters, was dutiable at 25 cents a pound under the former price, and last year was supplied to manufacturers at 90 cents a pound. The tariff is now only 10 cents and the price has been advanced to $1.15. The prediction is made that the price will this year go to $2.50 a pound. The world's production virtually has come under one control, and it is the intention of the producers to bring up the price of cobalt to the same high level that it commanded some few years ago.

A party made up of Bernard Purinton, Richard Smith, Edwin Wells, Thomas Sant, George Stevenson, Dale Thompson and Samuel Larkins, went to Columbus, Ohio, to attend a course of instruction for practical potters given in the department of Ceramic Engineering, at the Ohio State University. Lectures were given each morning and afternoon, followed by general discussion. Ernest Mayer, of the Mayer China Company, of Beaver Falls, Pa., was named as one of the lecturers in the new ceramic course at the University. Mr. Mayer has long made the science and practice of potting a careful study and is very well qualified to instruct young men and women who will become interested in the subject. Other men well known as ceramic experts were among the lecturers.

William Burgess, first vice-president of the United States Potters' Association, rather takes the pins from under the Limoges porcelain manufacturers, when he reminds them that all they have to do is to disclose "the contents of their books," in order to protect themselves from alleged unfair valuations of ware imported into this country. This is one thing, he adds, they have persistently refused to do, preferring to let the United States Government secure information as best it may through outside sources. When the government has about made out its case with all possible accuracy and it reveals a condition inimical to the importers, they protest and threaten, but since they have the remedy in their own hands and refuse to apply it, no sympathy should be wasted over their crocodile tears. The latest bluster is that the French Parliament may not appropriate money for an exhibit at San Francisco but if we have to buy French friendship by sacrificing fair treatment of American commercial interests, Uncle Sam can well afford to let the aggrieved foreigners stay at home.

The sanitary pottery business in the west is not what the manufacturers would like to see. In fact, business is "off color." The reason for this condition is assigned to the fact that building operations have been slow during the last six months, but that with the opening of Spring building, trade will come forth in large volume as in past years.

There is a considerable amount of sanitary pottery being exported now, Mexico, when that country is "normal" being the largest user. However, Japan is getting to be one of the best countries on the map for the purchase of American sanitary pottery. This export business is growing, and will continue to grow on account of so many advances being made in foreign countries in the "sanitary up-lift movement."

The threatened coal strike is causing more or less worry among those pottery manufacturers in the west who use coal for kiln firing purposes. In a few instances, the pottery manufacturers have as much as 1,000 tons stored. While quite a few of the western plants use gas there are others which will have to provide a large "pile of coal" to last should the strike be of any duration in the coal fields of Ohio, Western Pennsylvania and West Virginia.

At the annual convention of the National Brotherhood of Operative Potters, which will be held in Atlantic City early in July there will be more or less discussion concerning the sanitary wage scale. Last year the convention dealt with the domestic ware wage scale, but it was not settled in a final manner, so to speak, until late in November. In some of the locals, resolutions which will be presented to the convention for consideration are now being threshed out. It is said that quite a number of these resolutions will have to do with the internal affairs of the organization. No resolutions will be offered which will in any way concern the domestic ware wage scale. All of these resolutions will be in the hands of the officials of the organization during May, after which they will be published in pamphlet form and distributed among the trade.

The executive committee of the National Brotherhood of Operative Potters, after being in session in East Liverpool, Ohio, for a few days, during which time numerous trade problems were given consideration, has adjourned. Accompanying president Edward Menge, the eastern members of the executive committee, left for Mannington, W. Va., to take up several trade matters calling for their attention. The executive meeting was attended by president Edward Menge, East Liverpool; first vice-president, F. H. Hutchins, of Trenton, N. J.; second vice-president, S. B. Burgess, East Liverpool; third vice-president, John Randolph, Trenton; fourth vice-president, Sheldon Moore, Trenton; fifth vice-president, George Martin, Trenton; sixth vice-president, T. M. Woods, Sebring, Ohio; seventh vice-president, Frank Gratton, East Liverpool; and secretary-treasurer, John T. Wood, East Liverpool.

Kaolin Deposits in Louisiana.

M. Meilsen, head of the West farms at Hammond, La., reports the discovery of a large deposit of kaolin at that point. He states that he has been experimenting wih this clay for several months and believes that it will prove valuable for chinaware and crockery. The clay is of a rather peculiar appearance, running from a beautiful snowy white, through yellows, pinks, browns and other colors to an almost jet black.

Pottery Industry at the Panama Exposition.

The pottery industry of East Liverpool, Ohio, will be extensively advertised at the Panama Exposition at San Francisco, in 1915, as the result of a commission from the Southern Railway Company, representing the United States government, to R. E. Spencer, instructing him to prepare seventy lantern slides of the ceramic industry of East Liverpool, showing the manufacture of pottery from the raw clay until it stands a finished product.

Economy in Giving Employees Proper Care.

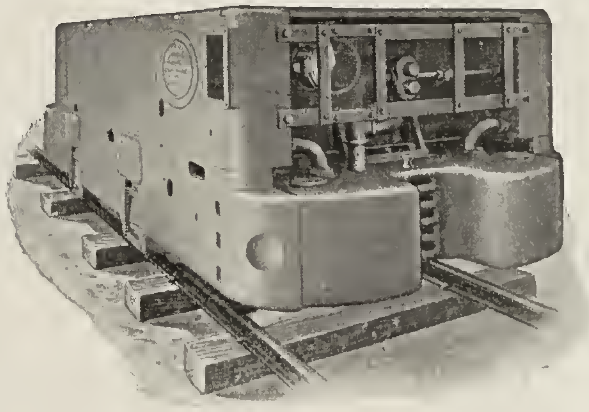
Speaking of the high mortality and early invalidity of operatives in the cement industry and in some branches of clay working, the superintendent of one plant employing a large number of men stated that, prior to the installation of bath, toilet and rest rooms, the percentage of workmen invalided by sickness or breakdowns was chronically abnormal and substitute lists had to be regularly provided in order to avoid irregular runs in the various departments. Thus, scores of men were carried on part time, being held in reserve for emergent calls to replace those who were on the sick list. Since the introduction of modern sanitary conditions, the "reserve list" has been practically eliminated, applications for work have so increased that a higher standard of efficiency has been fixed and is maintained, and the percentage of periodic absentees reduced to a point where it no longed figures in the economy of the plant. A high standard of bodily cleanliness has taken the place of a somewhat doubtful condition, entirely without compulsion on the part of the employers. This has had an effect in raising the efficiency of every employee, and is reflected in a certain financial independence that did not exist before the free shower baths and other comforts were provided. The introduction of a rest room for the men, while originally dictated by a purely philanthropic thought, has proven a splendid investment.

Use Lidgerwood
Crawford Drag Line
Excavators

For Excavating and Stripping
Shale and Surface Clay

Lidgerwood Manufacturing Co.
NEW YORK
Fisher Bldg., Chicago

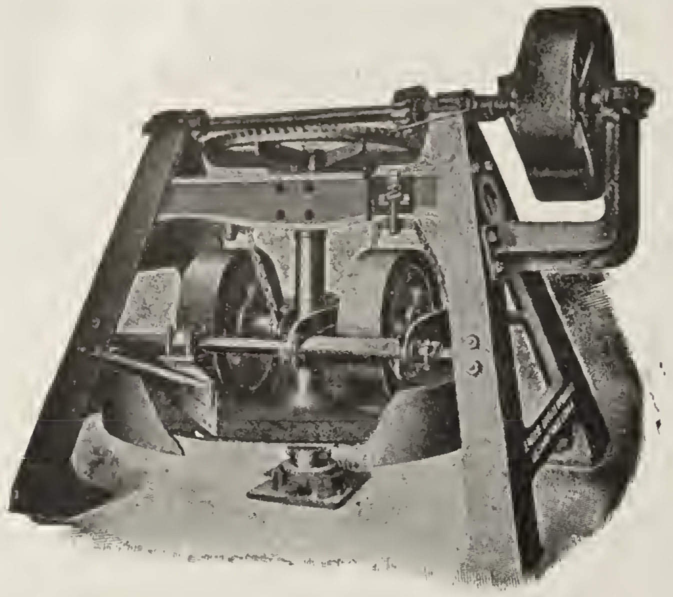
Gasoline Motors



Over 300 in Use—
Used by 150 Companies.
Used for Underground
or
Surface Haulage—
2½ to 16 Tons Weight.

Geo. D. Whitcomb Co.
Rochelle, Illinois

The "Eagle" Dry Pan



With independent and suspended mullers,
has more

Distinctive Points of Merit

than any other Pan on the market.

DESCRIPTIVE CATALOGUE ON REQUEST

EAGLE IRON WORKS, Builders
DES MOINES, IOWA

THE OTIS

Tubular Feed Water Heater, Oil Separator and Purifier

is not an experiment but a tried and trusted appliance that the makers are not afraid to

GUARANTEE

To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust*, so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator*.

We are so sure of the OTIS that we agree to pay all cost of a trial—freight, cartage, piping, etc.—if it fails to do all we claim for it.

Catalogue and Prices at Your Service

The Stewart Heater Company,

33 EAST DELEVAN AVENUE · BUFFALO, N. Y.

News in Brief

ALABAMA

The Copeland-Inglis Shale Brick Company, of Birmingham, Ala., has just completed an order for 1,000,000 paving brick for Tampa, Fla.

ALBERTA

Vitrified Clay, Ltd., of Calgary, Alta., makes the American Sewer Pipe Company's patented vitrified salt-glazed, interlocking segment sewer blocks. These are an innovation for Alberta and are creating a great deal of favorable comment.

ARKANSAS

The Texarkana (Ark.) Brick Company was chartered March 5, with a capital stock of $25,000. C. W. Fouke is president; A. H. Miller, secretary-treasurer.

CALIFORNIA

F. W. Eastman, western representative of the Denison Tile Engineering Co., of Cleveland, Ohio, has organized the Los Angeles Denison Block Company, at Los Angeles, Cal., with George H. Rogers, formerly of Portland, Oregon, as manager.

The Inglewood Brick Company of Los Angeles, Cal., has enlarged its plant by building two new kilns and installing some new machinery. Enameled brick will be one of the products of the plant this season.

W. W. Dennis, of the McNear Brick Agency at San Francisco, Cal., notes a rapid increase in deliveries on contracts closed during the last six months. His concern is now shipping at the rate of about 1,500,000 brick a month, and hopes to surpass that figure in April and May.

N. Clark & Son, of San Francisco, Cal., report some improvement in the sewer pipe business since the rainy season ended. They have nothing of unusual magnitude on hand, but have lately made shipments on quite a number of small jobs, and are much better satisfied with the outlook.

Brickmakers and brick contractors are hopeful of having the new army buildings at Fort Winfield Scott, San Francisco, Cal., made of brick. Plans are drawn for both brick and reinforced concrete. If the final decision is in favor of brick, the work will require about 900,000 common brick and 120,000 pavers.

The Thermos Fireproof Construction Company, a new concern to the western field, has opened an office in San Francisco, Cal., under the management of Charles Duguid. This company is introducing an entirely new line of interlocking building blocks, and promises a lively competition in this market.

Contractors in San Francisco, Cal., are figuring on the Twin Peaks tunnel, the figures on which are being taken for both brick and concrete. If the tunnel lining goes to brick, it will give an outlet for about ten million commons. The largest tunnel work in that city heretofore done was the Southern Pacific Railroad tunnels in the Potrero section of the city. These were bored some years ago and were lined with brick.

Berkeley, Cal., is making good progress with the construction of a modern sewer system. Contracts for the trunk line sewer on Woolsey, Ashby and Adeline streets was let a few days ago, the total amounting to about $100,000. A total of $475,000 for sewer purposes was voted a few months ago; and of this about two-thirds has now been apportioned. The remainder will be allotted soon and contracts let.

The California Denison Block Company has contracted to use the entire output of the Sacramento Clay Products Company, to consist mostly of the Denison patent interlocking tile. J. B. Philips, superintendent of the Carquinez Brick & Tile Co., and of the Pacific Coast Shale Products Co., will take charge of the Sacramento plant, as well. A branch office has been opened at Sacramento, in charge of D. A. Cannon.

After handling two tons of shale from the quarries of the Pacific Coast Shale Products Corporation, J. B. Phillips, general superintendent of the Carquinez Brick & Tile Co. of Carquinez, Cal., is fully convinced that this shale is the best brickmaking material he has ever seen. Samples of brick and hollow tile, made of this clay, have been brought to Porterville, Cal., and are pronounced first class by experts. The output of the plant will be taken by the California Denison Block Company.

The demand for brick pavements which began in San Francisco, Cal., a few months ago, after having been held off for many years and which now bids fair to be a regular thing for city pavements, has spread to some of the adjacent cities and towns, at least as far as public demand is concerned. The proposal to pave Twenty-third Street in Richmond on the eastern shore of San Francisco Bay, has led to a demand on the part of the property owners along that thoroughfare to have the street paved with brick rather than cheaper materials. It is not known how the matter will be treated by the officials in charge. The city has now taken final action in the matter of vitrified paving brick for Third Street, one of the main thoroughfares on the south side. The supervisors have definitely decided in favor of brick.

CONNECTICUT

The Berlin (Conn.) Brick Company has installed electric power in its plant. H. S. Tallard is in charge.

The New England Brick Company property at Farmington, Conn., has been sold at a receiver's sale to James P. Martin, of Lancaster, Pa., who plans to reopen the plant. Several improvements are planned.

C. W. King, for the past twenty years associated in an important capacity with the H. Wales Lines Company, of Meriden, Conn., tendered his resignation, early this month, to take effect April 25. He will be manager of the Central Connecticut Brick Company at Meriden, Conn., beginning May 4.

An auto truck, owned and used by the Montowese Brick Company, of New Haven, Conn., won a prize in the automobile parade recently held in the historic city of the Elms. The prize was offered for the truck which carried the best advertising feature and this the Montowese company won by building a brick house on the truck and sending it around the city. This not only advertised the brick company, but helped in the great "boost for brick."

GEORGIA

T. W. Garbutt, of Tifton, Ga., is seeking a location in Tampa, Fla., and other cities in that state, it being his purpose to erect several plants.

W. A. Harsha, a former well-known resident potter of East Liverpool, Ohio, has completed the erection, it is understood, of a $150,000 plant at Athens, Ga., where hollow floor and fireproofing tile will be made. The plant is equipped with but one kiln, which is said to be 765 ft. in length.

ILLINOIS

It is rumored that a new clayworking plant will be started near New Cambria, Ill., by Frank Nicholson, of Iola, Kan.

Albert Lenz has bought the tile plant formerly operated at Gilman, Ill., by J. W. Wild.

The Danville (Ill.) Refractories Company has been incorporated, with a capitalization of $300,000. C. J. Crawford, W. C. Johnson and C. R. Leins, all of Danville, are named as incorporators.

F. E. Schultz, formerly superintendent of the Albion (Ill.) Shale Brick plant, has resigned, and gone to Ohio, where, it is understood, he will be connected with the Wooster Shale Brick Company, of Wooster, Ohio.

Joseph Hodges, proprietor of the drain tile factory at Lyndon, Ill., in an interview given the Sterling (Ill.) "Gazette," stated that he was shipping a large amount of tile, one farmer alone having placed orders for twelve carloads.

Otto Gerhardstein, of St. Stephen, Ill., has purchased the Bloomville Tile Company's plant at Bloomville, Ill., and, it is said, will reopen the yard, which has been closed for the past two years.

Col. W. D. Gates, of the American Terra Cotta Company, told a "Brick & Clay Record" representative that his company was securing a very good volume of orders—by hustling for them. He said that the situation would, in all probability, improve as the Spring weather became more of an established fact, and that the orders would come in—if you hustled for them.

The Chicago Retort & Fire Brick Co. has moved its general sales offices from the old Continental & Commercial Bank Building in Chicago to the new structure at LaSalle and Adams streets, where elegant quarters have been secured in rooms 1881 to 1883. Charles S. Reed, president of the company, reports the demand for the company's output increasing and prices satisfactory.

INDIANA

The Greenfield Brick Company, of Greenfield, Ind., has been dissolved.

The Standard Brick Company of Evansville, Ind., is planning to build a new plant with a 50,000 daily capacity. The new plant will be used for car shipments, which will relieve the pressure on the old plant, which has all it can do to take care of the local demand.

The Fort Wayne (Ind.) Brick & Tile Company, which has a plant just west of the rolling mills in Fort Wayne, has started up again for the summer and is making tile from four to ten inches in diameter and also brick and building block of both solid and hollow construction and in sizes up to 6x12x12 inches. It has been usual to operate this plant about eight months in the year, but the management hopes to run right through the Winter this year, as Fort Wayne is coming into a strong building boom.

IOWA

Clarence J. Holman, head of the Sioux City Brick & Tile Co., of Sergeant Bluffs, Iowa, has tendered his resignation. He had held the position since 1909.

The Kalona (Iowa) Clay Company started up its plant for the year on March 16. Advance orders and inquiries indicate a very busy Spring trade.

D. C. Shull, of Sioux City, Iowa, has secured authority for the issuance of additional stock, so that the total issue will now be more than $1,000,000. It is said that two more tile plants will be consolidated, making nine, in all.

A natural deposit of clay has been discovered near Clermont, Iowa, which has proven of great value in making soap. A company is being organized to build a soap factory which will cost in the neighborhood of $50,000.

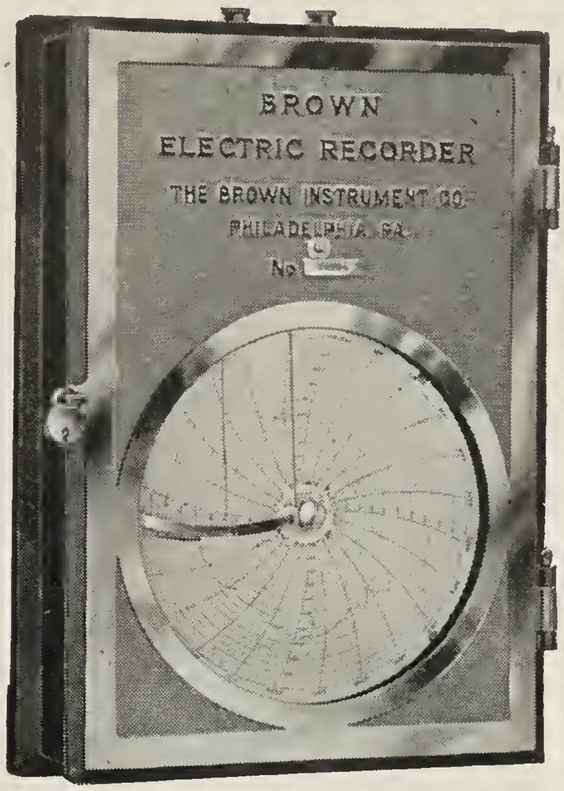
KANSAS

Frank E. Nicholson, of Iola, Kas., is on the point of starting a brick plant at Augusta, Kas.

The Salina (Kas.) Vitrified Brick Company intends to enlarge its plant and install new machinery.

C. A. Noll, of Wichita, Kan., has been elected president of the reorganized Blackwell Brick Company, of Blackwell, Okla. H. L.

The
Burning Question!



Many Clayworkers are still trying to burn their kilns by the old guesswork method of judging the temperature with the eye. They know that every now and then there is a slip-up somewhere and a kiln goes bad. They realize that a

Brown Electric Pyrometer

should prevent this loss, but they have had a notion that Pyrometers were always getting out of order and wouldn't benefit them. They have probably heard of the Pyrometers of by-gone days which were naturally not as good as the Brown Electric Pyrometers of today with their improved features. Brown Pyrometers are making good in the clay industry and to prove it, let us send you a list of hundreds of satisfied users. If you are from Missouri, we are here to show you.

Write for new 64-page catalogue No. 10, just off the press.

The Brown Instrument Company
Philadelphia, Pa.
Branch Offices:
NEW YORK PITTSBURG CHICAGO

The
Gerlock Iron
Dumping Table

Reduces green Brick Loss.

Increases Output.

Hundreds in use.
Satisfaction guaranteed.

Descriptive circular
and prices furnished
on request.

H. W. GERLOCK
HUNTINGDON - PA.

Livingston, of Blackwell, is vice-president, and Carl Randall, of Blackwell, is secretary-treasurer.

The Coffeyville Brick & Tile Company has contracted with the municipal electric lighting company for current to run one 50 h.p., four 40 h.p., one 30 h. p. and a few smaller motors. These will be in addition to the motors already installed at the Coffeyville plant, having been brought over from Independence, Kan., at which place the brick plant owned by the same company, has been dismantled.

The Kansas State labor commissioner recently decided a mooted point in favor of labor, holding that payment, under the Kansas workmen's compensation law, begins on the date of injury, where disability extends over more than two weeks. Employers have held that compensation began two weeks following injury. The law as it stands is ambiguous. A joint meeting of employers and workmen was held in Kansas City recently without results. The ruling of the labor commission followed. A test case probably will be arranged, as it is understood the legislators who framed the law wished to provide for the beginning of payment two weeks following injury. Where disability does not last more than two weeks, the workman receives nothing.

KENTUCKY

The Richmond Heating & Plumbing Company, of Richmond, Ky., is preparing to go into the brickmaking business and is in the market for second-hand machinery.

The O'Kelly Brick Company of Ashland, Ky., has made several important improvements to its plant, including the installation of a new brick machine with a daily capacity of 20,000. A Chambers Bros. repress and a 9-foot dry-pan has also been added to the equipment, as well as a new dryer. The plant now makes 50,000 brick a day.

MASSACHUSETTS

Charles S. McCall, manager of the Standard Stove Lining Company, Weir Village, Taunton, Mass., is about to embark in the brickmaking industry, using a new process of burning, of which he is the inventor.

MICHIGAN

The Ajax Brick Company, of Detroit, Mich., has increased its capitalization from $100,000 to $150,000.

The Sandusky (Mich.) Tile & Brick Company has been incorporated with a capitalization of $24,000.

Thomas Brothers & Co., brick and roofing tile dealers in Detroit, Mich., have incorporated as Thomas Bros. & Co., Ltd., with a capitalization of $50,000.

E. H. Baker, of Huntington, Ind., is interested in the new clayworking company that is to be located at Grand Ledge, Mich. This company is capitalized at $150,000.

MINNESOTA

The Range Sand Lime Brick Company, of Pengilly, Hibbing, Minn., will build a plant at the point named.

The Red Wing (Minn.) Sewer Pipe Company has bought the clay deposit underlying the Schmidt farm in Hennepin County, near Lake Minnetonka, for $15,570.

The Red Wing Brick & Tile Co., of Red Wing, Minn., will take over the property of the Barr Clay Products Company of that place. It is said that a number of improvements will be made.

F. W. Pofahl, of Detroit, Mich., will take charge of the tile plant that is just west of the city of Albert Lea, Minn., and will start it up as soon as the necessary repairs have been made. This plant has been closed down more than a year.

At Fergus Falls, Minn., a tile plant owned by A. H. Denniston, is turning out 4,200 drain tile a day, and, it is expected will increase the output to 6,000 daily, as the season grows. There is a steady market for the Fergus Falls tile and prices are more than satisfactory.

MISSOURI

James M. Kennedy, of Fredonia, Kas., is negotiating for the purchase of the Knob Noster Brick & Tile Company, of Knob Noster, Mo.

Another brick plant has begun to use electricity as a motive power, the latest being the Pea Ridge Brick & Tile Company, of Richmond, Mo. Robert Blair is in charge of this enterprise, which is owned by Richmond men, exclusively. The local electric light company furnishes the current.

The Western Paving Brick Manufacturers' Association is now engaged in a membership campaign and is pointing with justifiable pride to its long list of recent achievements, as well as its plans for the future. Most of the important paving brick manufacturers in this section are members of the organization, and several more are anxious to become affiliated.

The Vale Brick Company, of Vale, Mo., the style of the new manufacturing concern fathered by George C. Stephens, will begin active operations in the immediate future, with an initial capacity of 60,000 daily. The last piece of equipment has been delivered at Vale, which is a few miles from Kansas City, and the finishing touches are being put on the new plant. The output will be increased as soon as the plant is working smoothly, and will in a few months have a capacity of 100,000.

A wire order for 300,000 fire brick for Panama, followed by mail requisitions for larger blocks, have been features of the recent activity of the W. S. Dickey Clay Manufacturing Company, of Kansas, City, Mo. The brick will be utilized in power plant construction, in which the government is as busy as the proverbial bird dog at present. A good part of the local company's output of fire brick will be absorbed by Panama orders in the immediate future.

A residence to be constructed entirely of hollow tile has aroused much attention in Kansas City, Mo. The house is to go up at Fifty-fourth street and Rockhill road, at a cost of $8,000. It will be one of the few of the kind in this section, and its general qualities will be noted with much interest.

The plant of the old Kansas City Brick & Stone Company at Sugar Creek, Mo., several miles from Kansas City, recently was sold to satisfy a judgment. The new owners have not indicated their plans. The original company intended to remove the stone which covered the shale and sell the crushed rock, at the same time operating a brick plant. Only a few loads of stone were sold and the kilns were never erected.

The plans of the Waverly (Mo.) Brick & Coal Company to establish kilns at its mine and manufacture fire brick were temporarily halted recently as the result of a fire which destroyed the company's tipple. The plant is being rebuilt, however, and officers of the company expect to enter the brick manufacturing trade in the next month or two. Coal mined from the vein will be burned in the kilns, and the company will thus be able to produce brick at a minimum of cost.

Country orders have been heavy recently with the Kansas City, Mo., plant of the Hydraulic Press Brick Company, according to Manager A. J. Hazelton. Business in Kansas City has been fair, but has been topped by that from various points in Missouri and Kansas, where building operations are progressing at a rapid pace, with the agriculturists in line for big crops. The company is working only one plant in Kansas City at present, but is contemplating reopening one of its others.

Recent paving brick projects promoted by the Western Paving Brick Manufacturers' Association included the following: Missouri Valley, Ia., 25,000 yards of brick; Booneville, Mo., 6,000 yards; Emporia, Kan., 6,000 yards; Sabetha, Kan., 14,000; Fort Worth, Tex., 10,000; Houston, Tex., 10,000; West Union, Ia., 10,000; Corning, Ia., 14,000 and Lexington, Mo., 3,000. Three-inch vertical fibre will be used on highways Nos. 1 and 2 at Calcasieu Parish Lake Charles, La. A total of 10,000 yards of paving is involved.

Improvements in the Kansas City offices of the Lumbermen's Supply Company, under the management of F. B. Clyatt have been completed. The leading lines of brick handled by the company have been installed in such a way that contractors may make their selections without losing time. The agency of the Warren B. Ferris Company, of Columbus, O., which recently was secured, is proving a valuable one. The Lumbermen's Supply Company formerly handled the Ferris line only in a section of Kansas. It now has it for the States of Kansas and Missouri.

NEW JERSEY

J. M. Morton, of New Brunswick, N. J., is superintending the improvements that are being made to the old plant of the New Brunswick Tile Company, which has passed into the control of a company headed by W. M. Shinnick.

Moses Callear, widely known in this country and in England among manufacturing potters, and a part owner of the Lamberton pottery, of Trenton, N. J., died at his home in that city, April 5th, after a long illness. He was 66 years old.

A strike that was of but short duration occurred at the Maddock pottery at Coalport, N. J., when ninety sanitary pressers quit work, March 19. It was due to the discharge of some of the men, which, the National Brotherhood claimed, was unjust. The matter was adjusted, however, and the men returned to work in a few days.

Work was resumed, on April 7, at the works of the Atlantic Brick Manufacturing Company, of Mays Landing, N. J., which plant had been closed down since November last. New automatic presses have been installed and other extensive improvements made to the plant. Sidney B. De la Rue, attorney in charge of the Jackson estate, had been in conference with superintendent George Myers, looking to the reopening of the plant, which will now employ about 125 men. The improvements will increase the capacity fifty per cent.

NEW MEXICO

The Gallup (New Mex.) Brick Company is about to increase its capital stock from $50,000 to $100,000 and will install new machinery and otherwise make provisions for an increased output.

NEW YORK

A heavy wind wrecked the plant of the Tidewater Paving Brick Company, of Catskill, N. Y., on March 5.

Frank W. Reiter, national advertising manager of "The Mantel, Tile & Grate Monthly," with headquarters at 45 East 42nd Street, New York city, was suddenly stricken with appendicitis recently and was removed to the hospital for immediate operation. Mr. Reiter is doing as well as can be expected and his many friends throughout the country will be pleased to learn of his full recovery.

C. S. Sage, president of the Sage Brick Manufacturing Company, of Greenport, Suffolk County, New York, writes, saying that the brick market is a little slow at the present time. Greenport is situated in the extreme eastern portion of Long Island, a little too far away from the activities of New York city, to enjoy any of the little booms that ocur perennially in the city of the Great White Way. It ought, however, share in the steady growth of Long Island, which is fast becoming a country of magnificent country homes.

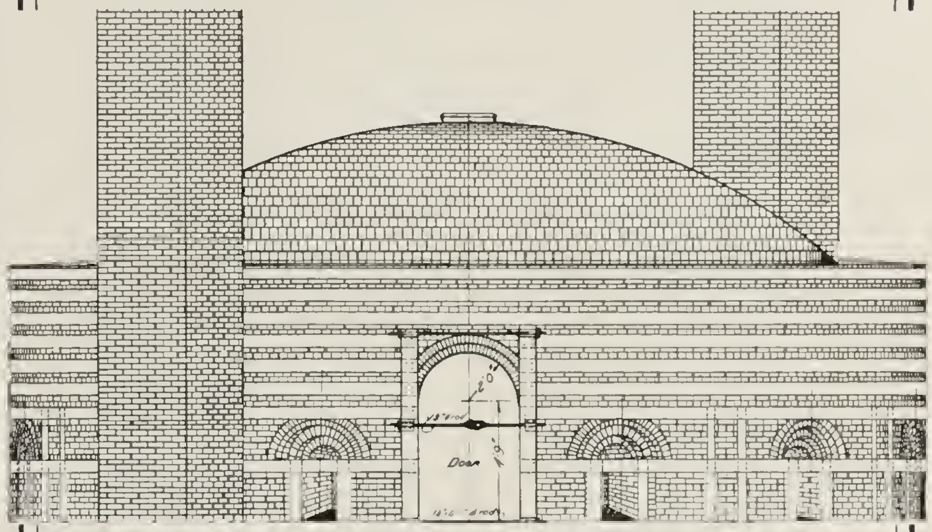
NORTH CAROLINA

The Pope Brick & Trading Company, of Coats, N. C., has been incorporated with a capital of $100,000.

G. W. Isenhour & Sons, of Salisbury, N. C., are preparing to increase the capacity of their plants at New London, N. C., and at Salisbury. This firm recently purchased from George

Claude Smith Company

Kiln Builders



A Popular Type of Kiln for Hollow Ware

We Build Kilns of all types
to suit the conditions
on the yard

Builders of the
Smith Steel
Encased Kilns

417 So. Dearborn Street
Chicago, Ill.

$5 for an Idea—

You Can Write it in Twenty Words

Do you know some short cut to manufacturing efficiency? Have you devised a simple contrivance that lessens labor and improves your product? Have you a new wrinkle that helps your men or your fellow workers or that brings a profit to your employer?

If you have a suggestion of any sort that would be of benefit to a fellow workman, write it out in twenty words or more—one hundred should be ample, and send it to "Brick and Clay Record." We want it.

Brick and Clay Record Pays for Suggestions

We pay $1 for every suggestion sent us and used in "The Superintendent's" Department, and the best suggestion receives a special prize of $5 each issue.

Have you a way of doing something that is different from the other fellow? Send it to us.

Have you a device that adds to the efficiency of your machine? Send it to us.

Have you a suggestion that improves the quality of your wares? Send it to us.

We Pay $1 for Every Suggestion That We Print

We are striving to make "The Superintendent's" Department of great practical value to our readers and we want you to help us. This department is intended as a symposium of ideas. It should bristle with useful tips and suggestions. Read it yourself. You may receive some little idea thereby that will be of great assistance to you. In exchange for the good that you receive contribute something for your fellow workmen.

Write your suggestions on one side of the paper—in ink and the shorter the better. Address it to "The Superintendent, 'Brick and Clay Record.'" Be sure to sign your name and give your address, so we will know where to send the check.

Brick and Clay Record
CHICAGO

W. Watts, of Durham, N. C., a completely equipped dry-press brick plant, and will move the machinery to New London. New kilns will be built and additional machinery installed.

H. Weil & Bros., of Raleigh, N. C., will shortly begin rebuilding the plant that was destroyed by fire. It will be on a much larger scale than the old plant and will have modern machinery.

NORTH DAKOTA

The University of North Dakota, at Grand Forks, N. D., has developed a very well equipped ceramic department at its School of Mines, in which it is doing a large amount of practical work, from common brickmaking to the highest grade of pottery. E. J. Babcock, dean of the College of Mining Engineering, is working on a book on clays and their utilization, which he expects to publish in the near future.

OHIO

The McCormick Tile & Brick Company has been incorporated, and will operate a tile factory just north of Galiopolis, Ohio.

The J. E. Landrum Drain Tile Company, is building a plant at Junction City, Ohio, which when completed May 1, will employ 40 men.

The Trumbull Brick Company, of Levittsburg, Ohio, is to be equipped for the manufacture of fireproofing. A. H. Lansberry is planning the new buildings.

The Hecla Land Development Company of Ironton, Ohio, will erect a new brick plant at that place, where it has 13,000 acres of clayland.

Twenty-one "White" motor trucks have been purchased during the past year by building material dealers in Cleveland, Ohio, for the delivery of brick, cement, lime and sand.

With a capital stock of $22,000, the Celina St. Marys Brick Company has been formed at Celina, Ohio, by F. G. Ungerer and a number of business associates.

The Enamel Vitrified Brick Company, with offices in the Nicholas Building, Toledo, Ohio, will erect a plant in Toledo, with a daily output of 40,000 brick.

The Logan Clay Products Company, of Logan, Ohio, resumed operations this month, after a shutdown of about four weeks. Sixty cars of coal have been stored by this plant against the miners' suspension.

Robert L. Lewis, of Gloucester, Ohio, has become the head of the sales department of the Athens (Ohio) Brick Company, after having been connected with the Wassal Brick Company, of Gloucester for more than eleven years. He will take the place of the late C. H. Doan, of Columbus.

The Iron Clay Brick Company, of Columbus, Ohio, of which J. M. Adams is secretary and treasurer, is making extensive changes in its display room, and featuring several new kinds of face-brick. The offices of the Conard Brick Company and of the Brick Builders' Supply Company are in the same suite.

Following the example set by the Laughlin pottery, the American Sewer Pipe Company has drilled an 88-foot water well on their premises in East Liverpool, Ohio, there to provide drinking water for their employes. At this depth, however, the water has not proven as pure as desired and operations for sinking the shaft deeper started at once.

Should the railroads succeed in putting through the suggestion advanced by the Interstate Commerce Commission in making a charge for "spotting cars," those manufacturers who have private sidings will be given a severe jolt. In East Liverpool, Ohio, for instance, where the majority of the potteries have private sidings, and the Pennsylvania railroad being the only road entering that district, it would receive a handsome yearly revenue from this particular source.

Harry R. Wyllie, a native of East Liverpool, Ohio, where for a number of years he was connected with the pottery business, until the old Union Pottery there was sold to A. M. Moreland, of Pittsburgh, Pa., and who is now at the head of the Wyllie China Company, at Huntington, W. Va., is now a "Colonel." He has been recently made a member of the staff of Governor Hatfield, of West Virginia. Colonel Wyllie is a member of the United States Potters' Association, and has always taken an active interest in the welfare of that organization.

Mason Chilcote, of East Liverpool, Ohio, district manager of the American Sewer Pipe Company, has been tendered the appointment of superintendent of a brick plant, near New Lexington, Ohio, where the state of Ohio proposes to manufacture brick for use in constructing official buildings. The appointment was effective April 15, on which date Chilcote reported for duty. He had been identified with the American Sewer Pipe Company for 18 years, his headquarters having been in East Liverpool four of the eight.

The brickmakers in the Shawnee district, in Ohio, are still having trouble with the labor unions. Scarcely had the new wage scale been signed with the men in the plants, than the clay miners struck and as a result, many of the plants are approaching a point where they will have to suspend on account of lack of raw material. Fair sized stocks of brick, that had accumulated before the trouble began with the brick handlers, are fast being shipped out, and unless a speedy settlement is effected with the miners, a great deal of business will be lost in the Shawnee district.

ONTARIO

Damage to the extent of $15,000 was done at the plant of the Ontario National Brick & Tile Company, at Cooksville, Ont., by a high wind that blew over four 70-ft. chimneys and injured the dryer and machine shops.

OREGON

The Fairmont Brick Company, of Monroe, Oregon, has begun making pressed brick, in addition to its regular output of common builders. This is, it is claimed, the only plant in Oregon making pressed brick, aside from the one at Willamina.

PENNSYLVANIA

The Milton Brick Company of Harrisburg, Pa., has filed a notice of increase of stock from $75,000 to $100,000.

The Harbison-Walker Refractories Co., has declared the usual quarterly dividend of 1½ per cent on the preferred stock, payable April 20 to holders of record April 10.

A charter has been issued to the Paxton (Pa.) Brick Company, with a capital stock of $10,000. Robert McCormick, Joel D. Justin and Henry M. Gross of Harrisburg, Pa., are the incorporators.

Thomas Cunningham & Co., general contractors, of Philadelphia, Pa., state that they had been awarded contracts for paving nineteen streets with vitrified paving brick and that they will use the McAvoy block. This contract will keep McAvoy works very busy for months to come, it will take millions of brick to do this work.

O. W. Ketcham, whose office is in the Builders' Exchange, Philadelphia, Pa., and factory at Crum Lynn, manufactures architectural terra-cotta and fire-proofing building tile as well as the hollow-tile for exterior and interior work. This phase of the clay working business looks very encouraging for this season of the year.

Manufacturers of face-brick in Pennsylvania, who have no satisfactory representation in New England, might do well to get into communication with W. J. Condon, a well known brick dealer in Boston, Mass. Mr. Condon has been long and favorably known to the architectural profession and to the contractors of Connecticut, Massachusetts, Vermont and New Hampshire, and can give manufacturers who make a gray, gray mottled, buff or buff speckled brick, a live representation in a market that is open for this class of material.

A. S. Reid & Company, 1421 Chestnut Street, Philadelphia, are the exclusive agents in Southern New Jersey, Eastern Pennsylvania and Delaware for "Tapestry" brick, in colors of red, buff and gray, brown, yellow. These brick are made by Fiske & Company, Inc. The Reid Company reports that it is doing a large business in this line of material, as well as in paving and enameled brick. Roofing tile, and hollow-tile fireproofing are also handled by this company, which is booking some very large contracts. The Reid Company also has an office in the Firemen's Insurance Bldg., Newark, N., J., where they handle all clay products.

A special meeting of the United States Sanitary Potters' Association, was held in Parlor-C, at the Fort Pitt Hotel, Pittsburgh, Pa., April 6, the meeting being called by president A. M. Maddock, of Trenton, N. J. Sessions were held both morning and afternoon. The meeting was called to discuss the proposition of establishing a cost system in the sanitary potteries, and with this end in view, W. L. Blake, an efficiency expert of New York, addressed the meeting. More thought was also given to the idea of creating a credit bureau. President Maddock said that the manufacturers should know how much it costs them to produce goods, but under the present method, certain details connected wih the business are more or less guess-work. The meeting was well attended by both Eastern and Western manufacturers.

At the annual meeting of the stockholders of the National Fireproofing Company, at Pittsburgh, Pa., April 2, which was entirely harmonious, the most important action was the authorization given the board of directors to spend $30,000 in the further development of the company's tract at Haydenville, Ohio, in search of oil. The company owns one well on the tract that is producing about six barrels a day, and operations by independent producers in the district encourage the hope that further development of the Natco's property will prove profitable. President W. D. Henry reported the building business quiet, but promising in New York and exceedingly good in Pittsburgh. Building operations also are slow in Chicago. Were it not for the good trade being done by the agricultural department, which is busy making material for silos, he said some plants would be compelled to shut down, but that all twenty-seven are working. The conduit business also showed signs of good trade. J. B. Finley presided at the meeting and C. G. Jones was secretary. The following board of directors was elected: D. F. Henry, J. B. Finley, H. M. Keasbey, W. D. Henry, John R. Gregg, W. A. Dinker, E. H. Straub, W. L. Curry, J. S. Craig, D. M. Campbell, C. E. Andrews, Jr., and Sidney F. Heckert, the last named being a new member af the board, which was increased this year from 11 to 12 members. The board subsequently met and reorganized by re-electing the present officers.

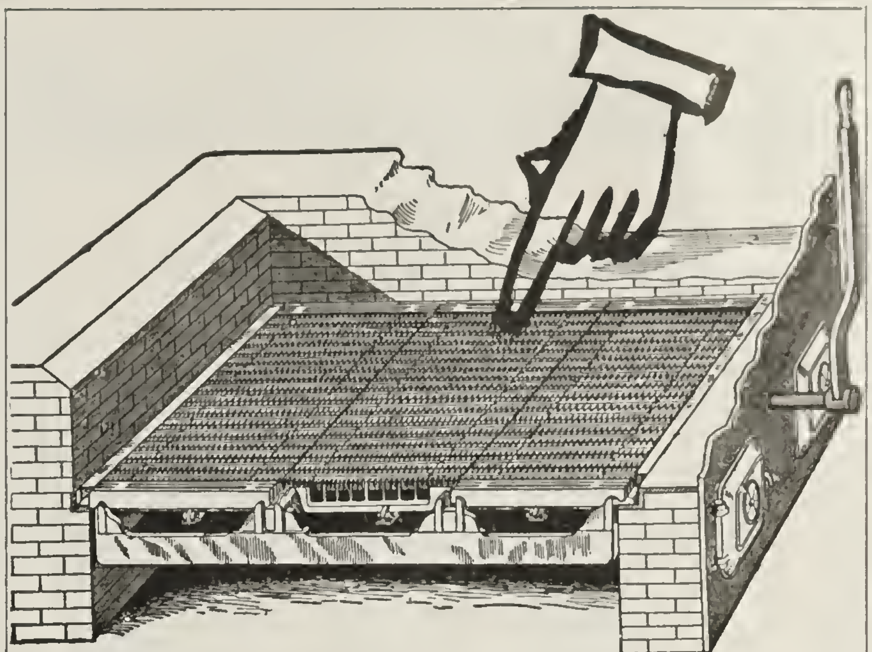
TENNESSEE

The Bristol Brick Company, of Bristol, Tenn., has elected S. W. Mitchel, president; J. H. Houck, vice-president and general manager, and Joseph H. Fleming, secretary-treasurer. Work has begun on the buildings that are to house the machinery for the new plant.

TEXAS

The Interior Decorating & Tile Company, of Dallas, Tex., has been incorporated with a capital stock of $50,000. R. W. Higginbotham, H. S. Simpson and J. F. Ingerman were the incorporators.

The First State Bank & Trust Company of Abilene, Tex., has started a brick plant in that city, using electricity for



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

The Martin Grate Co.
347 S. Dearborn St., Chicago, Ill.

Machine and Hand Brick Moulds

of Every Description

Write for Detailed Description and Prices

The G. B. Mentz Co.

America's Foremost Mould Makers

Wallkill, N. Y.

power. The installation is completed and the machinery has been tested out and found to be satisfactory.

The Board of Trade of Port Arthur, Tex., has received a letter from R. L. Dennison, stating that the erection of the 40,000 brick plant, already mentioned in "Brick & Clay Record," would begin early in April and be completed before May 15. This plant is to be on the spoils bank of the canal at Port Arthur, and permission had to be obtained from the government before the clay could be used.

UTAH

The Ogden Pressed Brick & Tile Company, of Ogden City, Utah, is enlarging its plant at Harrisville, Utah, and will begin to manufacture fireproof blocks. W. H. Child is in charge of the erection of the new buildings and it is said that more than $5,000 will be expended.

WEST VIRGINIA

Taylor & Robinson of Huntington, W. Va., will install new dryers and build an additional kiln.

F. Vernon Aler, of Martinsburg, W. Va., will build a plant on the S. J. Dixon tract of 23 acres and the Ezra Herring tract of 40 acres, in Martinsburg.

The Kanawha Brick Company, of Charleston, W. Va., is making extensive improvements, which include two new circular kilns. The capacity will be increased to 100,000 a day.

Construction of the new nine-kiln pottery at Grafton, W. Va., has been started by the Consolidated Manufacturing Company, the present headquarters of which are at Chester, W. Va. The company plans to have the pottery in operation by August, manufacturing a full line of general ware, both dinner, toilet and specialties. The working organization of the plant will be selected in ample time to secure full operations from the start.

WISCONSIN

The Bertler Brick Company, of Sheboygan, Wis., has bought new machinery and will begin the installation some time during the present month.

The Whitewater (Wis.) Brick & Tile Company has recently secured the right of way for a railway from its plant to the clay beds from which it secures its material. Ties, tracks, frogs and switches will be required, as well as some means of traction.

The annual meeting of the Red Pressed Brick Company, of Barron, Wis., was held during the last week in March and the following officers were elected to serve for the ensuing year: G. A. Koerner, president; Otto Berg, vice-president; K. E. Thompson, secretary-treasurer. The following were named directors: Otto Berg, J. P. Kohl, J. R. Ferris, F. A. Hilber and G. A. Koerner. Business conditions were reported as being excellent, the plant in splendid shape, $3,000 having been spent in needed improvements during the year closing. The investment now totals $45,000. It is expected that 3,000,000 brick will be produced this season, 35 men being employed.

"The Interlocker" Grows.

The youngest of the house organs in the clay field—"The Interlocker," the little magazine that promotes the interest of all good building, in that it booms the Denison interlocking tile, is growing. Not having the earlier numbers handy, it is impossible to say whether it has grown in size—or merely in the excellence and interest of the articles it is running. Be it as it may, the March number is a splendid example of house-organ journalism and a credit to C. W. Miller, its most capable editor.

Government Discontinues Suit Against Pottery Importers.

Orders discontinuing the suits brought by the government against six importers of French porcelain, to recover $1,300,000 for alleged violation of customs laws, were entered in the Federal court at New York, after a conference between the attorneys for the government and for the defendants. Negotiations looking to the settlement on discontinuance of eight other cases are under way.

Cleveland, Ohio, Fears a Shortage of Common Brick.

R. C. Mitchell, sales manager of the Farr Brick Company, of Cleveland, Ohio, in an interview given the Athens, Ohio, "Messenger," says: "In view of what appears to be a certain shortage of common brick, we are urging contractors to place orders early for the season's operations. Work now in sight that requires large quantities of brick means a demand far in excess of last season, and I believe that the shortage will appear early in the Spring. Without making any allowance for small jobs or orders from out of the city, these big operations will take the entire output of city plants. It is estimated that Cleveland will need 50 per cent more common brick than were used last year and the supply is only a fraction larger than it was a year ago."

The March "Claycrafter."

Leading with an article on Industrial Education—in bricklaying in particular, the March "Claycrafter," house-organ of the C. W. Raymond Company, strikes a note that should find an echo throughout the brickmaking industry. "Brick & Clay Record" has already received one letter commenting on this article, which is by Secretary Weidman, of the Wisconsin Clay Manufacturers Association, and believes it most timely. Clayworkers who are not on the mailing list of this excellent paper should see to it that the oversight is mended.

Twelve Installations of Underwood Systems.

Doubting Thomases among clayworkers will soon have an opportunity of practical demonstrations of the merits of the Underwood system of burning with producer gas, as three of the first installations are now nearing completion and in a few weeks will be burning various kinds of clay ware at a lower cost, in fuel, labor and spoiled ware, than was possible under the old methods. Up to the first of April, twelve installations had been contracted for, and the Manufacturers Equipment Company, of Dayton, Ohio, which is placing the system, is to be congratulated on the versatility of the system, which is being applied to up-draft and to round and rectangular down-draft kilns, and will be used for so many different kinds of clay ware that demonstration will be easy, no matter what type of kiln, or what kind of ware is under consideration.

April "American Clay Magazine."

The bright little house organ of the American Clay Machinery Company is unusually excellent in the current issue, the leading article being an appeal to clayworkers not to "play the waiting game," and trusting to the inevitable impracticability of cement-concrete roads to put a stop to this style of road building. It is a timely bit of advice, and could be extended to almost every branch of endeavor. Public buyers—men who spend other people's money—are notoriously careless—and forgetful. The "Wayne County Roads" are still being used to boost cement-concrete paving enterprises, despite the expose that has been given them.

Farmers Like Brick Highways.

All manner of interurban vehicle traffic needs good roads. Agriculture and like industries will never attain proper development without them. This is the outspoken opinion of every practical economist. Brick roads are good roads and this assertion is attested by Capt. J. W. Kitchell, of Pana, Ill., chief auspicer of the Pana Good Roads Commission. A project which he is fathering is a roadway between Pana and Rosemond and adjoining townships, which is to be paved with vitrified brick, laid on slack, with an estimated cost of $125,000. Brick has proven more serviceable than process briquettes, wooden blocks, asphalt, macadam or any paving material other than itself and granite blocks, the quality of which it very closely approximates. The proposed road is receiving the unqualified support of the farmers along the tentative route and they are all being rapidly converted to brick.

Tile Men Will Meet in Baltimore, Md.

At the recent convention of the Interstate Mantel and Tile Dealers' Association, Baltimore, Md., was decided upon as the city in which the 1915 convention will be held. The following officers were elected: Robert Beck, of Chicago, president; George F. Eubanks, of Atlanta, Ga., first vice-president; W. J. Northcross, of Memphis, Tenn., second vice-president; T. J. Foy, of Cincinnati, Ohio, treasurer.

Salt Lake Brickmaker Dies.

W. S. Simkins, treasurer of the Salt Lake (Utah) Brick Company, died March 14th in the eightieth year of his age. He was born in Norwich, Ohio, and went to Salt Lake City in 1864, where he engaged in the manufacture of fire brick. At one time he was one of the largest individual property owners in the Mormon city. His connection with the Salt Lake Brick Company covered a period of twenty-four years.

Lidgerwood Cableways Great Earth Movers.

More than six million cubic yards of material have been moved by one man—Charles H. Locher—while connected with various engineering enterprises, and all by Lidgerwood cableways. This represents a mass three times as great as the mass of concrete placed by Lidgerwood cableways in the Gatun locks at Panama, the largest mass of concrete in existence. The operations in which this mass of material was handled are the Chicago Drainage Canal, 1,700,000 cu. yds.; the West Neebish Channel, St. Marys River, 1,700,000 cu. yds.; the Livingston Channel, 1,700,000 cu. yds.; the Hydro-Electric Development, James River, 100,000 cu. yds.; the Western Maryland Railroad, 35,000 cu. yds.; the Wachusetts Dam, 400,000 cu. yds. and the New York State Barge Canal, to date (Lidgerwood cableway still at work) 600,000 cu. yds.

Chicago Man Goes to Nashville, Tenn.

Otto E. Olsen, of Chicago, has accepted a position as manager of the tile department of Schuler Brothers, of Nashville, Tenn. Mr. Olsen is a native of Copenhagen, Denmark, where he learned his profession, and five years ago was awarded a silver medal by the Danish government for designing and setting an exclusive fireplace of tile, in a competition that included the leading tile men of Denmark. He also had charge of important tile work in Berlin, Germany, for several years. In Nashville he will specialize in Rookwood tile, English, Welsh and German tile of all descriptions, and will direct the work of Schuler Brothers' extensive contracts in ceramic, mosaic and Terrazo and marble work.

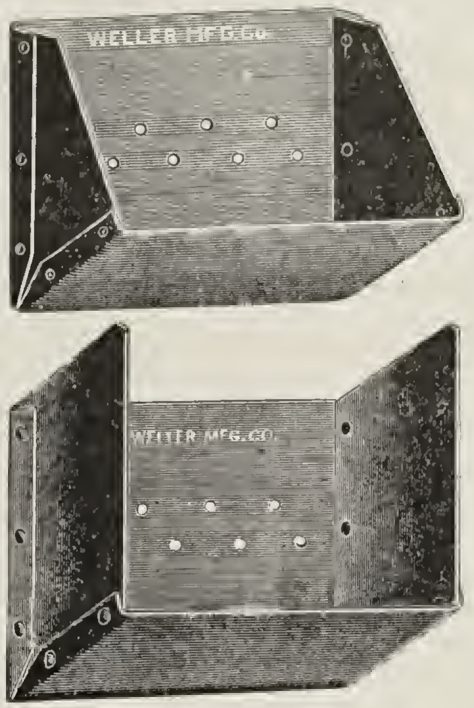
Weller Mfg. Co.'s New Office.

A new district sales office has been opened in St. Louis, Mo., by the Weller Mfg. Company, manufacturers of elevating, conveying and power transmitting machinery. The office is in charge of C. T. Davis, an expert consulting engineer, and is in the Victoria building.

WELL ER-MADE

The Weller Machinery accomplishes two distinct things in Brick and Clay Plants—it minimizes handling costs and effects quite an economy in time and labor.

Weller Machinery will take care of the material from the clay beds to the machines, then to the warehouse, and into the cars automatically and with uniform speed.



Elevator Buckets

Weller Spiral, Apron, Belt and Chain Conveyors, Portable Elevators, Dump Cars, Power Shovels, Steel Elevator Buckets, etc.

In the Power Transmitting Machinery we offer Friction Clutches, Pillow Blocks, Rope Drives, Gears, Bearings, etc.

Portable Elevators

The Weller Engineering Department is as serviceable in prescribing for specific needs as the Weller Machinery is in carrying out its intended purposes. Write us for our catalog describing the Weller Machinery in full

Weller Mfg. Co.
Chicago

New York Office, - - 50 Church St.
St. Louis Office, - 520 Victoria Bldg.

"Be a Booster"

"The Truth About the Wayne County Concrete Roads"

—By Paul E. Green, M. E.

If you have some new streets or country highways contemplated in YOUR city or community, and there is a likelihood that concrete will be considered as a paving material, stop this waste of the people's money by boosting for vitrified paving block, no matter if you do not make pavers.

You are a clayworker and should work for burned clay no matter what form it may be.

Clayworkers, Use this Book to Fight Concrete

Paul E. Green is a member of the American Engineering Society and was employed by certain taxpayers of Highland Park, Ill., to investigate the famous Wayne County roads before they decided on concrete for proposed street improvements.

Mr. Green made an exhaustive report showing actual conditions and giving full data on these "perfect" concrete roads. His report was published in full in the Oct. 7, 1913, issue of "Brick and Clay Record." We have reprinted the report in pamphlet form for popular distribution.

Show a Co-operative Spirit in Your Locality

See that every taxpayer gets a copy of this pamphlet. We have printed them in a convenient and attractive form for distribution and offer them in any quantity at $20 per 1000, which barely covers the cost of printing. Smaller lots at $2.50 per 100. Sample copies free. Send for a copy if you missed the article in the October 7 issue of this magazine.

Brick and Clay Record
445 Plymouth Court, Chicago

Storage Battery Tractors for Hauling Brick.

Storage battery tractors have proven satisfactory for brick haulage on the level, up to ten tons and even more, but there has been some hesitancy about their installation, due, in all probability, to the storage battery system having been belittled and denounced in non-technical journals, since the introduction of the system to surface cars for passeger service. Tractors equipped with storage batteries are used, however, in transporting material about plants where brick and other clay products are made, and it seems strange that they are not used to a greater extent, in the delivery of brick in cities where there is little or no grade to overcome in the streets. The question of the motive power to be applied to the transportation of brick and other clay products on short hauls is growing more important every day, and the storage battery equipment should be given a place in the consideration. Whether it is cheaper and more dependable than gasoline is a question to be determined. But it should be tested out.

Something About Radium.

Radium, as is commonly known, has a valuation that makes gold and platinum cheap metals by comparison. It is interesting to know, therefore, that a short report by Edson S. Bastin, on the "Geology of the Pitchblende Ores of Colorado" —recently issued by the United States Geological Survey, deals mainly with the geology, mineralogy, and origin of these deposits, their practical utilization having been treated somewhat fully in other publications. The quantity of uranium ores mined in the United States is exceedingly small, and the great bulk of it, from Utah and southwestern Colorado, does not carry pitchblende but contains the brilliant yellow uranium mineral carnotite. The small pitchblende production of this country is all from the one locality described in this report, in the heart of Gilpin County, famous as the birthplace of the gold-mining industry of Colorado. There pitchblende occurs as a constituent of mineral veins which were first worked for their gold and silver content and which still yield important amounts of these precious metals. It is notable that the only other localities in the world where pitchblende has been found in important quantities in mineral veins are the Erzgebirge (in Bohemia and Saxony) and the Cornwall district (in England). Its mode of occurrence in these countries is also described by Mr. Bastin. This report forms Professional Paper 90-A and may be obtained free by addressing the Director of the United States Geological Survey, Washington, D. C.

Ohio's Great Burned Clay Product.

More than $21,000,000 was represented in the clay products output of Ohio in 1913. This was an 18.1 per cent increase over that of five years ago, and 78.7 increase over the clay products output of 1899. One-fifth of all the clay products of the entire country is made in Ohio. There are 186 manufacturing establishments in Ohio where the raw clay is mined and converted into a very great range of commercial products from the ordinary sewer brick, paving brick, fire brick and sewer pipe, on up to the very finest and most ornate building brick and terra cotta vases. Last year 17,751 people were given employment in the brick factories of Ohio and $18,838,269 was disbursed in wages. The capital invested in the 186 brick factories in Ohio aggregates $32,166,636, to which Tuscarawas county is contributing a very large part, there being a score or more of the plants in operation in that county. Two of the largest plants in the country are in Tuscarawas county—the Crown brickworks at Parral and the Royal sewer-pipe works at Midvale. Both are operated by the Robinson Clay Products Company of Akron, Ohio. For many years the Royal plant at Midvale was the largest sewer-pipe establishment in the world, but later the same company has constructed a larger plant at Akron; also the American sewer-pipe plant at Barberton now has a greater capacity than the plant at Midvale. Mineral City, Uhrichsville and Dennison have extensive brick and sewer-pipe factories; three brick plants are operated near Strasburg, and two more will soon be under construction in that vicinity. Mineral City has two large fire brick manufactories, in which all kinds of brick are made, from the common building and sewer brick on up to the very finest and most beautiful face brick that can possibly be procured. The Federal Clay Product Company's factory No. 1, at that place, was established by C. Edwards Holden, one of the pioneer fire-brick manufacturers of Ohio more than forty years ago. This plant, in addition to its regular building brick, face brick, and other machine made products, is equipped for the manufacture of glass tanks, furnace linings and hand-shaped fireproof blocks and forms of special construction. It operates also a sewer-pipe plant. The concern operating the Holden brickworks at Mineral City is officially known as the Holden Clay Products Company. The Federal Clay Product Company is rebuilding its big American plant at Mineral City, which was destroyed by fire last fall. It is also constructing a 1-000-horsepower electric power station in connection with the brick plant. There are extensive brickworks in operation also at Newcomerstown. There are three brick plants at Sugarcreek, one at Stonecreek, one at Zoar and one at Bolivar. The plant at Bolivar is owned and operated by the Federal company of Mineral City, which concern has also an extensive plant at East Sparta in Stark county. While the clay industry does not pay particularly high wages, this drawback is more than offset by the fact that brick plants can be run steadily throughout the year, and through times of business depression when other industries may be at a standstill. The brick industry of Tuscarawas county is capable of vastly greater development, especially in the vicinity of Mineral City, Canal Dover, and Strasburg, where immense deposits of plastic clay, fire clay and shale remain untouched, while the plants now in operation at those places own, and hold under lease, clay lands sufficient to run their plants for years to come.

IN THIS NUMBER: BRICKWORK FOR INTERIORS BY J. PARKER B. FISKE

BRICK *and* CLAY RECORD

G. W. LENKERD

SECRETARY EASTERN PAVING BRICK MFRS. ASSN.

Classified Ads Pages 1106-1109

CHICAGO, MAY 5, 1914

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PAULDING

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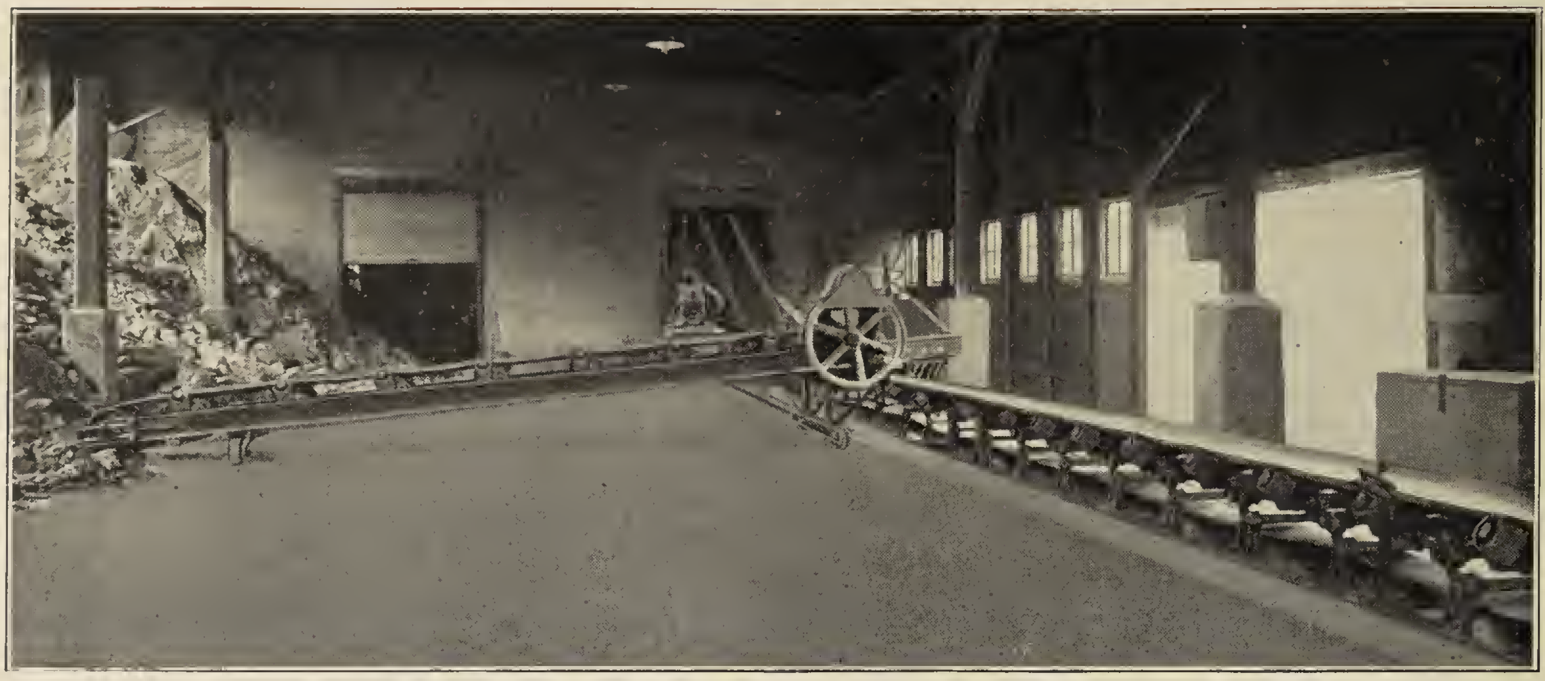
"Brick and Clay Record" Has Double the Paid Circulation of Any Other Clay Journal Published

WELLER-MADE

WEATHER YOUR CLAY



Two things are Absolutely Free on every Clayworking plant.

They are Air and Weather.

The first is used as freely as it is given. The second is generally blamed for Bad Burns.

The first Works for the manufacturer in the boilers, the driers and the kilns.

The second Ought to work for him before his clay reaches the pug-mill.

As coal loses its potential heat units through exposure, clay gains in its potential ware-making qualities.

Coal loses more during the first day after it leaves the mine than it does the second. It takes many days—even months, before it becomes almost useless for heat producing.

So clay gains more, the first day after it is mined, than it does the second day, and often takes months before it reaches the point where further weathering will not alter it.

The point is—use your coal as soon after it leaves the mine as is humanly possible.

And—expose your clay long enough to eliminate the destructive elements, without running up a big expense bill.

A study of your conditions will give you a good idea of how long that period is.

A study of reclaiming and storing systems will determine the amount of the expense bill.

There are several simple and efficient ways of handling clay in and out of storage, and the cost of installation, operation and upkeep is surprisingly small.

Whatever the capacity or product, there is a WELLer MADE equipment that will pay for itself in the improved quality of the ware.

And—by eliminating the chances of shut-downs, through lack of material, increase the output until it Is capacity.

Our engineering department is at your disposal. It has designed similar equipment to the one your plant needs. Some slight alteration to meet your requirements will be made if necessary.

Let Us Work With You and For You

A Postal or a Short Letter Will Bring a Dividend

Weller Manufacturing Company

CHICAGO

New York Office: 50 Church St.

St. Louis Office: 520 Victoria Bldg.

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
by KENFIELD-LEACH COMPANY, 445 Plymouth Court, Chicago
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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

---

IN OHIO, a brick plant has been leased by the State, to make brick by convict labor, for State-owned buildings and public highways.

In New York, an appropriation of $75,000 has been made to erect buildings and install machinery for a paving brick plant at the Elmira Reformatory, to help make better men of the youths who have fallen foul of the criminal law, and MORE BRICK ROADS for the Empire State.

In Iowa, the State Board of Control is investigating the possibility of establishing a brick and tile plant at the Anamosa Reformatory.

Upon the success of these State-owned brick plants will depend the action of other states. It may be that this movement will solve one of the great problems of society.

In every industry, the fear of "prison" labor in competition with "paid" labor has been a bugaboo. Great influences have been brought to bear against it.

The politician has campaigned with it. The labor agitator has been swept into power by the force of its terror.

With three forces—Capital, Labor and Politics—working in harmony, it is small wonder that the field of prison labor is badly restricted.

Capital and Labor owe a like duty to society. By it they are protected in their rights and possessions.

A part of that PROTECTION is the existence of penal institutions.

These may be corrective and uplifting, or punitive and degrading.

They may breed expert criminals in large percentages of their intake, or men, who, having learned the hardness of the transgressor's road, will walk in a straighter path than that which led them to the Great Gray Walls.

Much depends upon the opportunity to WORK and so heal the diseased tissues of a warped mentality.

Will brickmakers see this in a broad humanitarian light, or join their protests to the many that have gone up in other fields, when prison labor threatened a new competition?

Will they give thought to the fact that every yard of well made, well laid brick pavement is a SILENT SALESMAN for paving brick?

Will they stop to consider that the splendid official endorsement given brick by Martin A. Glynn, Governor of New York, might never have been given, had it not carried with it the possibility of extending the scope of convict labor?

Or—will the capital of plant ownership and the labor of the clay-mine, the machine room and the kiln, combine in protest and call the politician into conference?

And so make another chapter in the history of SELFISHNESS that has been read into this subject for fifty and more years.

SUPPOSE, on the other hand, that the Great Clay Family looks at it from another angle.

"Prison-made" has become a synonym for BADLY-MADE. Cheap labor is never really cheap.

Prison labor is not really cheap, but it works as cheap labor works.

It costs more to teach a man a trade, to watch him, to care for his health under non-healthful conditions, to house, feed and clothe him in confinement, than it does to take his labor in the open market, pay him a regular wage, and let him support himself and a family upon it.

The men who direct paid labor are hired for their efficiency and EXPERIENCE.

The men who direct paid labor often are hired for, and as reward of, POLITICAL ACTIVITY.

When it comes to Cost of Production, prison made brick will offer little or no competition to that made in privately owned plants.

When to that Cost is added the amount required for State "supervision" and all the other names that label slots in which the State may drop its nickels, it will be found that the State could BUY its brick cheaper than it can make them—except—

The dividend it will receive in a regenerated manhood, and an extended system of permanent highways.

INSTEAD therefore, of turning on a flood of protest against convict labor and State-owned brick plants, would it not be better to insist upon a rigid inspection of State-made brick, since we are to have them?

A movement of this kind would win the respect of every community in the country.

It would put to shame the selfishness of other industries that, while they have agreed that prisons were necessary and convict labor inevitable, wanted it employed on some—or any—product other than THEIR OWN.

The Children of Israel, captive in Egypt, were made to turn Nile mud into burned brick. The Children of Misfortune will be employed to turn the clay of this Free Land into the armor of a Great System of dustless, health-giving, WEAR-PROOF roads.

See to it, that in doing so, they do not put the prison-made stamp of inferiority upon the brick itself, and so do IMMEASURABLE HARM to a material that has the traditions of centuries behind it.

A NEW thought has come into being among manufacturers of burned clay products, a thought that is making itself manifest in every section of the country.

It is the RECIPROCITY of Clay.

In its first inception it was academic. Clay workers met and DISCUSSED problems of manufacture, of sale.

Associations were formed for mutual benefits, through advertising, through a better distribution of territory, through a more complete knowledge of transportation.

Societies were organized for the exchange of information on supply and demand, prices current, standardization and betterment of product.

Each branch of the industry is working out its OWN destiny in a mutual helpfulness, extended by the workers in that branch of the industry to other workers in the SAME branch.

Having stamped out the distrust that characterized the competition of a few years gone, these clayworkers have come to BELIEVE in each other and in themselves.

The spirit of helpfulness has grown from puny infancy into giant manhood.

It has reached out beyond the narrow lines of the one industry, and seeks to give MUTUALITY to the others. Like the ripples made by pebbles cast in waters at different points along the shore, the waves of GOOD FEELING are meeting each other.

The maker of sewer pipe is helping a brother clayworker to a fat paving contract.

The hollow tile maker is working for a brick veneer on the Normal School.

The paving brick man is trying to discourage the actvities of the iron or cement sewer pipe promoters.

The kiln fire is the ALTAR LIGHT in the Grand Lodge of Clayworkers.

AS THIS ISSUE of "Brick and Clay Record" goes to press, it has met and answered the pressure brought to bear upon it by influential members of the National Clay Machinery Association, manufacturers of Clayworking Machinery, calculated to force it to discontinue its publication semi-monthly.

This it has refused to consider, until such time as the clayworking industry withdraws the support so loyally given in the past.

The Clay Industry is ALIVE. It requires the news, the help, the enlightenment and encouragement that "Brick and Clay Record" is giving it, and DESERVES these things oftener than once a month.

In the May 19 issue—

How to Get Cheap Brick Houses—

a description of what one city is doing to provide permanent, low-cost homes for workers. This is the first of a series of articles on City Housing

It Will be Profusely Illustrated with pictures and plans of houses that have been built

A Full Time Manager

Being a Short Sketch, Relative to a Brickmaker Who, No Matter What He Believes About Life's Being Short, Knows that Time is Fleeting

G. W. Lenkerd*

General Manager Clymer (Pa.) Brick & Fire Clay Company

IF IT WERE not for Sundays and holidays, three years out of four in G. W. Lenkerd's life would have 365 working days. The fourth, including an extra day for February, would have 366.

Nearly twelve years ago, when he organized the Reynoldsville (Pa.) Brick & Tile Company, he found it the custom among brick plants to close down at the end—or at the beginning—of each year, for repairs. Sometimes they closed down at other times—to give the sales force a chance to catch up.

G. W. Lenkerd figured this as an appalling waste. He knew that interest and taxes could not be induced to lay off for repairs and that the way to make a machine or a plant profitable was to run it to capacity 52 weeks a year.

He carried this idea into the Clymer (Pa.) Brick & Fire Clay Company, which he organized in 1907, and it is said that neither plant has ever shut down, either for repairs or for lack of orders—and that at no time in those eleven years has either plant had a stock on hand that exceeded the orders actually on the books.

Which indicates that G. W. Lenkerd is some salesman as well as some organizer, manager, brickmaker and secretary.

For it is in the latter capacity that he has shown another side of his character, woven into the energy and forehandedness that made the brickmaking year at Reynoldsville and Clymer as full of days as an almanac.

This side is his willingness to spend some of the money he is making, and devote some of the busy days to the general interests of the clayworking world, and the paving brick industry in particular.

G. W. Lenkerd is secretary of the Eastern Paving Brick Manufacturers' Association, a position to which he was re-elected at the recent convention in Bradford, Pa. To quote C. E. Foster, president of that organization: "He is deserving of any tribute you may give him, as he is reliability itself, is a live wire, and has done wonders for the clay industry in the east, as secretary of the E. P. B. M. A."

Possessed of that valuable forcefulness that compels action while seemingly requesting it, of that genial disposition that smoothes away the obstacles in its path with a smile, he has made his term of office in the association he serves so well, one of harmony and good will.

His wide acquaintance among the men who are his brothers in claycraft has made him a splendid aid in the great work that the paving brick men are doing east of the Ohio river.

His aptitude for figures and the success of his private enterprises has led to his being named as chairman of a committee to draft a uniform and comprehensive cost-accounting system upon which the cost data of all plants in the association will be based.

With a wholesouled wisdom, the Eastern Paving Brick Manufacturers' Association sees to it that G. W. Lenkerd has something to do, as many days as he can spare out of the fifty-two times seven.

Mr. Lenkerd was born in Clearfield County, Pa., near Dubois, in 1871. He grew up on a farm, attending a country school, until he was 18, at which time he left the farm and began teaching the young Pennsylvania idea how to shoot the three R's. In the meantime he attended the Clarion State Normal School, from which he graduated in 1893.

For nine years, following that graduation, he was Supervising Principal of Public Schools, at Penfield, Pa., and at Reynoldsville.

That brings him down to the year he started the Reynoldsville Brick & Tile Company, about which mention has been made.

Possibly it was the great percentage of shutdowns—vacations and the like—in the school year that made G. W. Lenkerd so positive that the "annual shutdown for repairs" was so unnecessary on a good brick plant.

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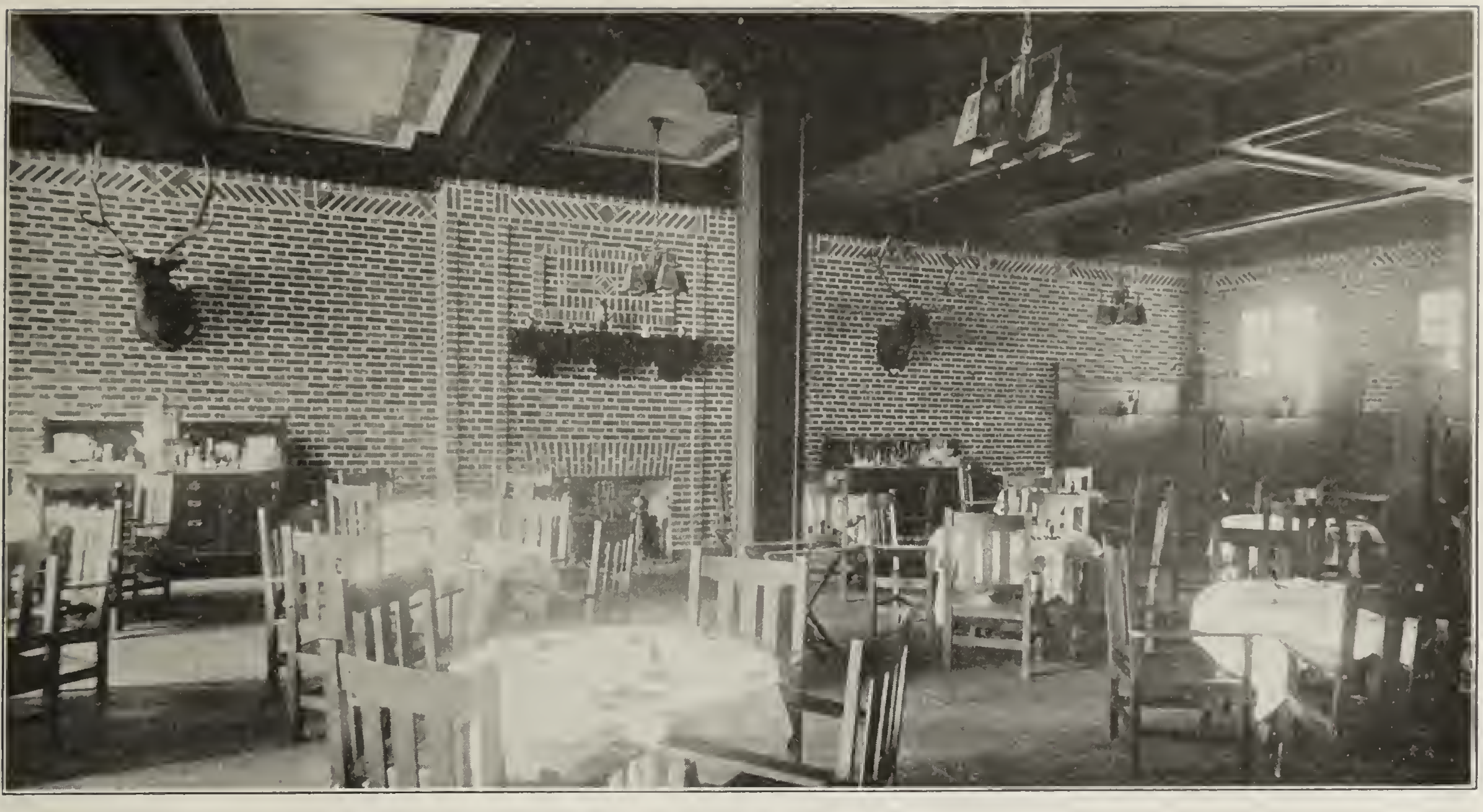
*Portrait on Cover



The Grill Room in the Elks' Club at Wilkes-Barre, Pa.

Brickwork for Interiors

Matte Surfaced Burned Clay Offers Wide Field for Designer and Home Builder and Conforms to Modern Thought in Interior Constructional Decoration

By J. Parker B. Fiske, S. B.

In presenting this article to its readers, "Brick and Clay Record" congratulates them on the opportunity afforded to see, with Mr. Fiske's eyes, the wonderful possibilities for burned clay that lie in the field of endeavor in which he has made so much progress. In the development of "Tapestry" brick and tile and the time, thought and loving care he has given to the aesthetic side of brickwork, Mr. Fiske has done work that is stamping his individuality on some of the finest examples of brick architecture in America.

UP-TO-DATE designers of high grade commercial or industrial buildings are beginning to discover that where light reflecting qualities are desired, either in court walls or interiors, and where permanence and freedom from renovating expense are imperatively important, light colored face brick, with smooth surfaces, or, better still, enamel brick, give the greatest measure of satisfaction. In the initial cost, this highest of high grade face brick or still higher priced enamel brick rank as luxuries, and were so regarded up to a short time ago. But when it is considered that, once installed, this class of construction can be cleaned down with soap and water, never requires painting, and constantly saves a certain percentage of the artificial lighting cost, it has to be calculated on a basis of added interest on investment, as compared to added efficiency—which is earning power.

In Chicago, a factory building recently erected for a well known maker of mens' clothes, has been lined, almost throughout, with white enamel brick, and the saving in the cost of lighting is estimated to be one-third. Were the difference in the cost of installing the enamel brick and the cost of plastered walls to be calculated as a separate investment, it is fair to assume that the interest earned by the saving in lighting cost alone, make it one of the best paying items in the entire enterprise.

But, while there is a large utilitarian field for the brickmaker in the line indicated, the writer has in mind another and more varied use of brick in interior work, largely along æsthetic lines. Smooth finished face brick and enamel brick are, for economical reasons, highly desirable for industrial buildings. For the interior of the home however, the smooth surface is rapidly becoming a thing of the past. Walls and ceilings are being "rough plastered," wall-papers are made to imitate fabric and the woodwork is even being sand-blasted to do away with the deadly monotony of the smooth, one-colored surface. Shellac and varnish are being replaced with chemical fumes and oil, not only on the wood trim, but for the furniture. The

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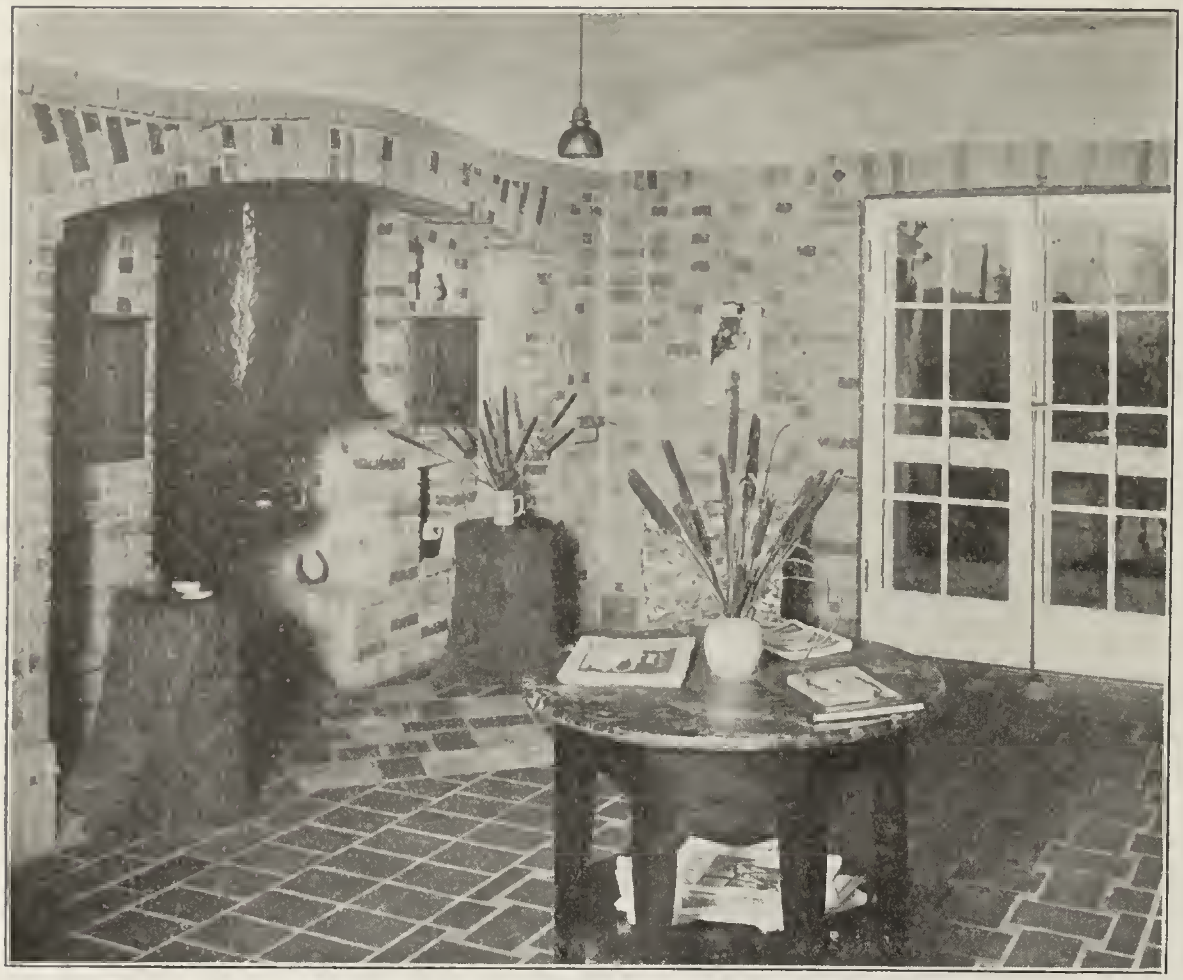


A Billiard Room in a Residence at Douglaston, L. I.

whole object and effort being to "kill the shine."

In the great Assembly Hall of the Harvard Club, recently completed in Boston, where English oak paneling has been used for the walls, the woodwork has been subjected to a heavy sand-blast, leaving it with the texture of an old chestnut fence rail, or the surface of some weather-beaten farmhouse, and the finish has consisted largely of chemical fumes and oil. The effect is so soft and pleasing that one instinctively reaches out his hand to "smooth" the surface, as he would with velvet or satin.

And as the broadcloth of fifty years ago has given away to the Scotch tweed in mens' clothes, so the rough texture for the interior of the home is replacing the costly and really offensive polish so commonly found in houses of the Victorian period.

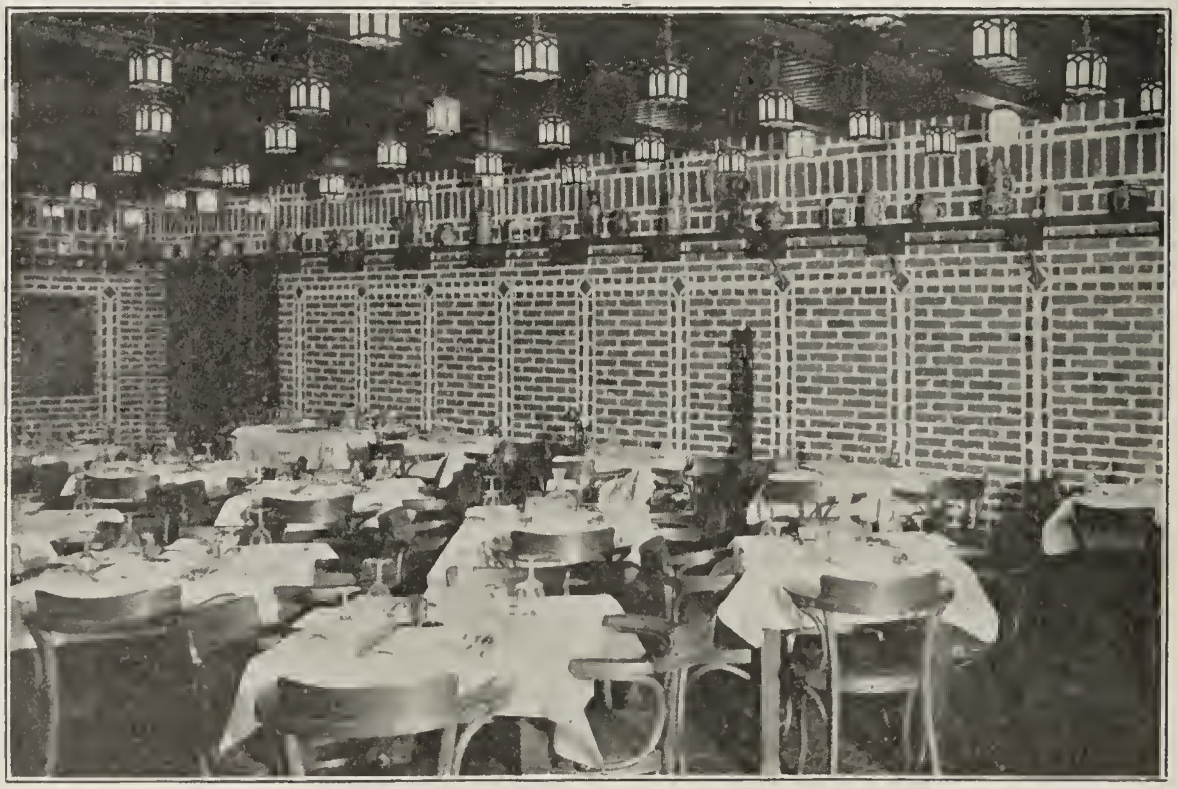
The advent of rough textured brick has opened the door for an artistic use of brick for the interior of the home, which was never possible to the highly finished brick of a decade past. The reason why "texture" is superseding the former polish in our walls and furniture is not hard to determine; it is largely physical—the eye tires of the glitter, the mind wearies of the monotony. A single sound or note, oft repeated, drives the nerves to protest. After the glare of the sun on a smooth sea, we turn with glad eyes to the ever changing color and contour of the surf line.

In a rough surface, the lights and shadows give this relief. The rough textured brick, if the texture and color have been well chosen, the charm of roughness (i. e. softness) is enhanced by the subtle undertones created by the lights and shadows, playing into and upon the colors. And these colors, blending in one light, contrasting in another, changing as the hours change, are a never ending delight to those who understand and appreciate beautiful things.

Interior brickwork must be considered from a standpoint of ornament, if it is to be successful. Its utilitarian aspect must be given secondary emphasis. A Persian carpet serves, indeed, to remove the dust from our profane shoes, yet in buying it, we study the color tones and pattern far more than the warp. So the colors of the brick itself must be selected with relation to the environment, the mortar joints carefully studied that no harsh lines may spoil the finished effect. Generally speaking, a gray brick is too cold, unless it be enriched by some bits of quiet brownish pattern work in border or frieze. Red can only be used where there is a strong light, otherwise the result is sombre. The golden buff, with proper variations of color, is pleasing, particularly where the more delicate tones are chosen for the dominating color of the wall. Fire-flashed buffs, with their deep, golden browns, afford all the necessary colors for tasteful enrichment.

An excellent example of golden buff material is shown in the illustration of a billiard room at Douglaston, Long Island. A considerable variety of color is used in the walls—perhaps rather too much—but little bits of decoration are used at salient points and the mortar joint has been carefully looked after to see that it was made harmonious and refined. Here the use of correctly shaded mortar has blended otherwise "contrasty" colors.

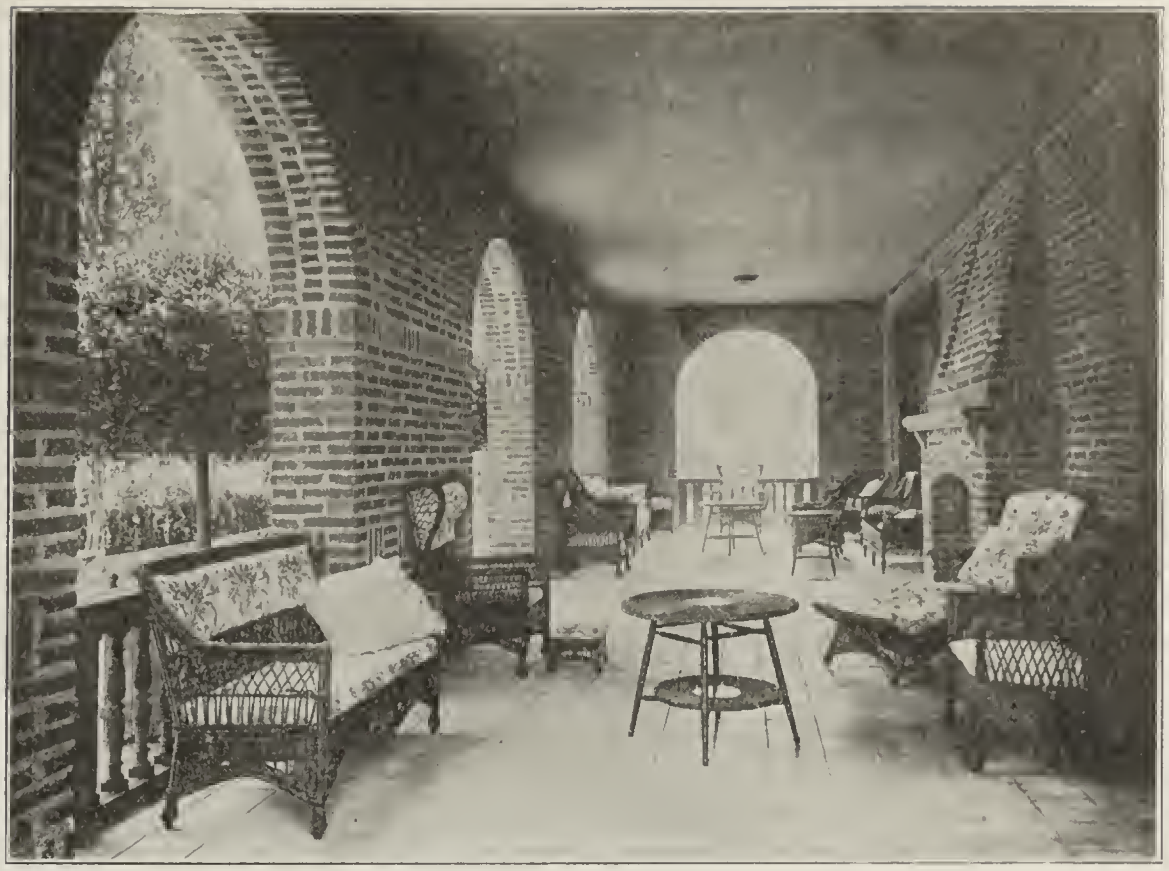
Interior brickwork has been used with splendid results, in the decorative panels in the restaurant of the Grand Central Terminal, in New York, one of which is shown in the illustration. Here six by six tiles have been used for the field, with a decorative border of darker shades. These panels blend particularly well with the Guastavino arches in the ceiling, and, while highly decorative, are in no way obtrusive in the general composition of the room.



The Cafe Republique, at Washington, D. C.

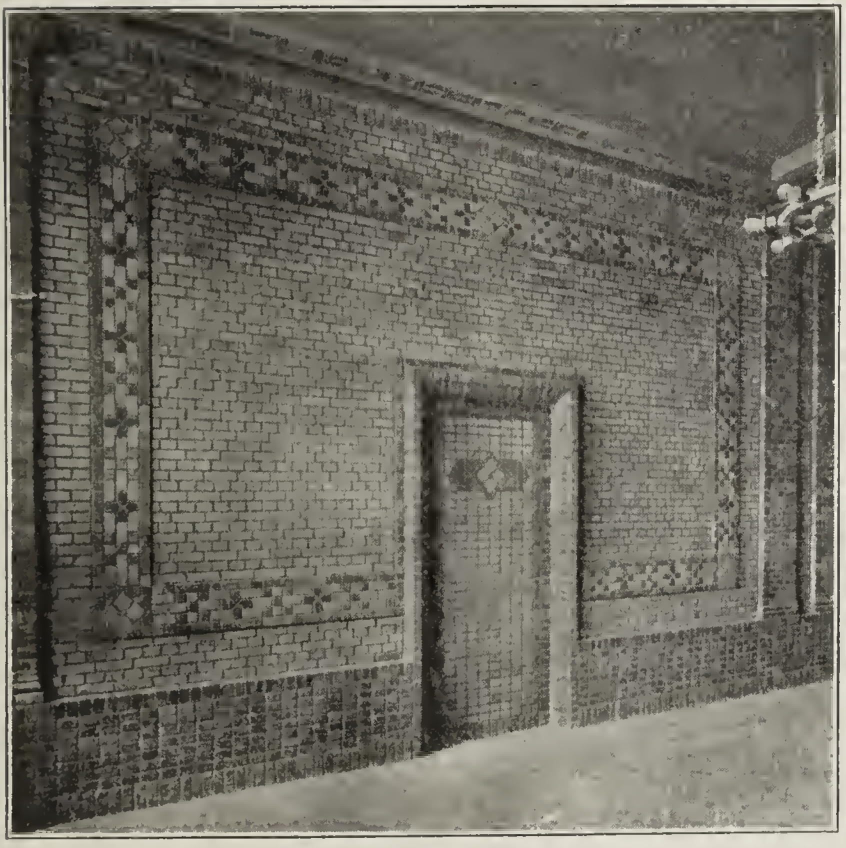
For places that are partly out-of-doors, yet still treated somewhat as interiors, as, for instance, the modern sun-porch, the rough textured brick is particularly pleasing, suggesting strength and dignity and forming, as it were, a connecting link between the house and garden, using the material of the house, but partaking of the color of the garden. A glimpse of the sun porch of a residence at Oyster Bay, Long Island, is shown in the illustration, and this gives a very fair idea of this treatment.

Interior brickwork must, of necessity, be confined to those parts of the house that are usually associated with informality and tinged with quiet. But for these places, no material other than brickwork offers such possibilities for decorative schemes that "age cannot wither nor custom stale" the while forming part of the permanent construction.



The Porch of a Residence at Oyster Bay, L. I.

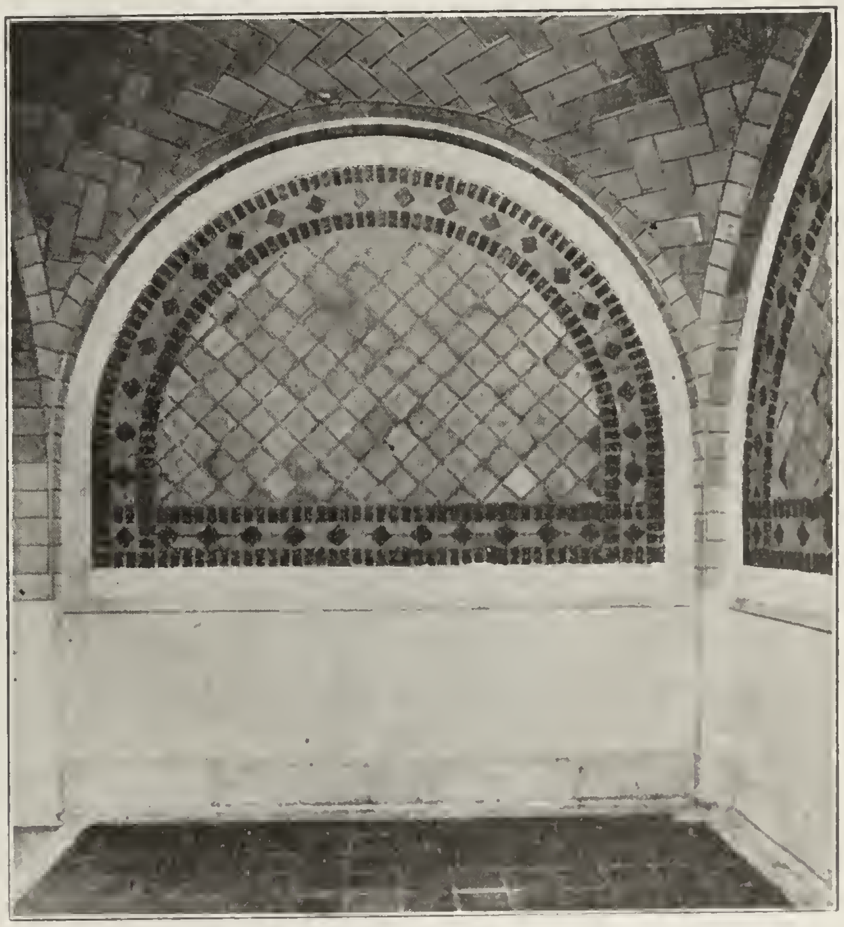
For places of a public or semi-private nature, as for instance, the modern rathskeller, clubroom or even the entrance and reception room of a private office building, good brickwork has many charms. In combination with lattice, rough textured brickwork has proven interesting and harmonious, as may be seen in the illustration of the Cafe Republique, in Washington, D. C. The Elks Club, at Wilkesbarre, Pa., has its grill room entirely lined with brick, a fireplace being built in one end, and a decorative frieze around the top of the walls.



The Lobby of the Otis Elevator Building, New York City.

The lobby of the Otis Elevator Building, in New York, is a good example of the way in which an unusually appropriate effect may be obtained at a very small extra cost. All four walls and the floor are finished in soft, mellow tones of golden brown. The dado and door trims are of rich, dark shades, while each of the walls is paneled with a border in soft reddish and blue tones. The cost of work of this character is no more than marble and little more than wood paneling. How much more inviting to the prospective customer than the cold, uninteresting marble and plaster of the ordinary city office building! It is not hard to believe that the psychological effect on the mind of the prospective purchaser who visits this building is worth good, cold money to its owners.

Reference has been made to the effect of the mortar joint, a subject which has heretofore received altogether to little attention, both from architect and contractor. In the oldfashioned brickwork, with its narrow joints, the effect of the finished wall was largely that of the brick itself. In the modern rough textured brickwork,



One of the Panels in the Restaurant of the Grand Central Terminal, in New York City.

with its wide joints covering twenty to thirty per cent of the entire wall surface, the mortar joint is of paramount importance. Brick of even comparatively poor quality are given an air of respectability if woven together with the proper joint, while the best brick obtainable may easily be ruined as far as the finished effect of the wall is concerned, if the architect and contractor do not do their full duty in regard to the composition and mixing of the mortar and the finish of the mortar joint.

The average architect touches but lightly on the mortar joint, when he writes his specifications, leaving, as it were, a quarter of the wall surface to its fate, as represented by the judgment of the contractor. The average contractor leaves it largely to the Italian mortar mixer, who seldom brings the artistic ideals of his own sunny land to this, the home of his adoption. The average manufacturer of brick and the average dealer in brick consider their duty nobly done when acceptable brick are delivered at the building.

Is it any wonder then, that much of the rough textured brickwork recently erected all over the country is a dismal failure? Does it not point the way to a new duty for the maker of brick—the duty of seeing to it that his product is properly laid? Can he still believe that the public judges his material by its appearance during the short time it stands piled on the sidewalk, rather than the years it will stand a part of the finished structure?

Many a home builder has been deterred from the use of brick by the daily sight of some building that was ruined, so far as appearance goes, at the mortar bed. Yet good mortar mixing is the simplest of all simple processes. It requires proper materials, which are easily obtained, proper formula for proportioning the ingredients, a couple of measuring buckets and a little care and intelligence on the part of the man who is doing the mixing. Surely even "common" labor has in its ranks men who can be trusted to measure materials by bucketfuls, and repeat the same proportions of sand, gravel, lime, cement and color in every "batch." In the lack of that repetition lies half the story of the unsuccessful brickwork that has held back the development of a brick architecture that now rivals that of any age or nation, but which, had we given the mortar joint its due, would now surpass anything the world has ever seen.

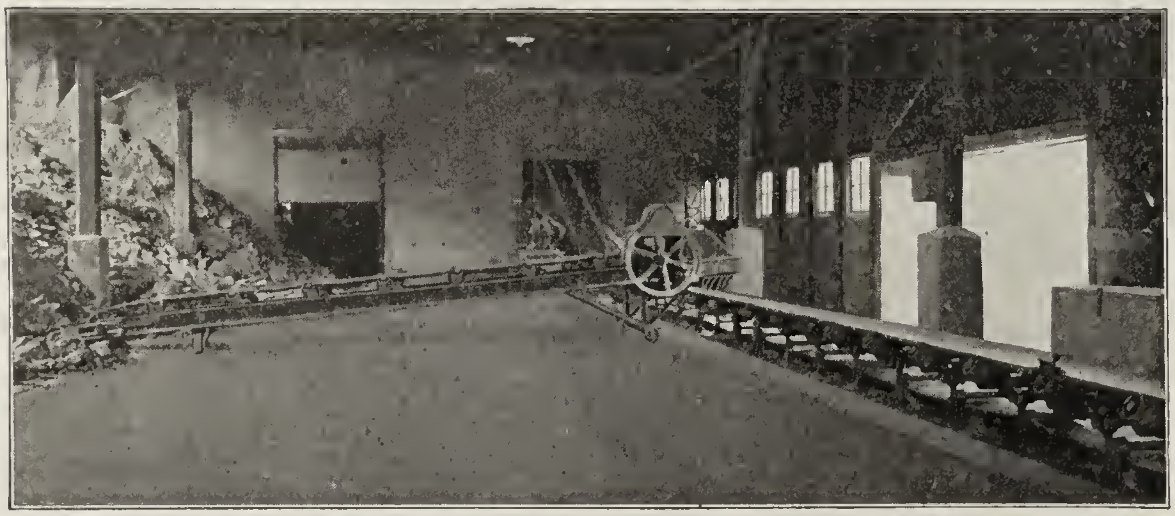
Nor is the dealer in brick to be held blameless. His is the mind that has sought, the tongue that has persuaded the use of the material for which he stands sponsor. His contact with the architect and the owner has given him an opportunity of impressing the importance of the proper use of brick. His experience, his stored up knowledge of previous successes and failures, enables him to suggest the better way and to warn against probable failure. The finished structure, if it be rightly a "thing of beauty" becomes as a servant to him, for with it, he can sell other customers. And, on the other hand, if through his failure to do his part in making that structure a matter of pride, it fails to live up to the glowing promises he made for the brick when he had nothing but a sample, a price, an imagination and a flow of language, he knows it will be a handmaiden to his competitors, who will gladly point it out to their customers, as a "reason why."

And so, with the alternative of an inheritance or a tax in sight, it seems strange that the dealer follows so closely in the footsteps of the manufacturer, and feels his obligation over, when the last team-load of brick is delivered and the "job" finished without being "held up."

Far and away the best advertisement for brick is good brickwork. Good brickwork is impossible where mortar mixing is hap-hazard. There are great golden dollars for the brick maker and for the brick dealer in the mortar bed. The question is—How much time and thought and money will they sow in that bed, to reap the harvest that will come of its careful cultivation?

Reclaiming and Storing Clay at Northwestern Terra Cotta Co.

THE PROPOSITION of storing raw clay so that it can be readily and economically reclaimed is one to which many manufacturers have given considerable study.



The advantage of having a good supply of clay on hand for all emergencies can not be overestimated, as delays in shipment, bad weather and mine shutdowns are always to be reckoned with. In addition to the supply on hand there are decided benefits to be derived from the weathering of the clay while in storage.

Among the many arrangements for storing and reclaiming, one of the simplest and most effective types is that in use at the North Western Terra Cotta Company's mammoth plant at Chicago.

The clay comes into the plant in box cars and is put in storage in the usual manner. To reclaim the clay the portable conveyor illustrated herewith is put into use. Starting at one end of the long storage shed the clay is loaded onto the belt by hand shoveling. This belt in turn delivers onto the long main belt shown in the right of the picture which carries the material to the grinders.

As the conveyor is moved forward the clay is piled up behind until one end is reached and the conveyor is then worked back in the opposite direction. This system was designed by Mr. F. Carman, chief engineer of the North Western Terra Cotta Co., and was built and installed by the Weller Manufacturing Company. The majority of clays are vastly improved by being weathered. This is, seemingly, Nature's own process of improvement. The fact that an ever increasing number of clayworkers are taking advantage of it, is a matter of congratulation to the profession.

Chicago's Brick Strike

The Quiet Way in Which One of the Greatest Strikes in the History of Brickmaking has Been Handled, Shows Something of the Breadth and Greatness of the Middle West Metropolis

Facts About Chicago's Great Brick Makers' Strike

Chronology—
Feb. 10, 1914, to ——

Number of Strikers—
2700 to 3000

Men Thrown Out of Employment—
125,000 to 150,000

Loss to Chicago's Builders—
$18,000,000 a month

One of the Illinois Brick Company's Yards. The Combined Stock on Hand Is 175,000,000 Common Brick.

What the Employers and the Men Claim

Wages—
That the present Chicago scale is from 30 to 40 per cent higher than the average of twenty-seven brickmaking centers

Conditions of Labor—
That the employer has the right to discharge any man who is not efficient, regardless of Union affiliations.

The Men—
Want an increase of from 5c to 22½c an hour and claim that the employers are making enough money to afford it.

FROM present indications, the Chicago brick strike will continue to be in force for several days, if not weeks. Hope had been entertained that the arbitration committee of the Chicago city Council would be successful in bringing the matter to a happy termination, but this failed, May 1, when the manufacturers walked out of the second day's conference.

At the first day's conference, which was held Thursday, April 30, William Schlake, president of the Illinois Brick Company, presented to the city council's special committee on the brick strike the first statement the employers have made since their labor troubles began more than two months ago.

Mr. Schlake asserted the strike of the 2,800 brickmakers, which has thrown 150,000 workmen out of employment for two months, was due to the activities of labor leaders.

"It is not the fault of the manufacturers that this trouble has arisen," he said. "They are willing to recognize labor unions and have always done so when their demands were reasonable. The strike began when the brickmakers asked for an increase in wages in February. We replied that it would be imposible for us to give the increase and meet the heavy expenses attending the operation of our plant. We had considered reducing the wages of the men, but for the sake of our business and the building operations and the thousands of workmen involved, we will, as a compromise, agree to renew the old scale of wages.

"Millions of dollars' worth of work has been stopped by the brickmakers' strike. Thousands of men not connected with brickmaking have been thrown out of employment. This condition could be changed tomorrow; building enterprises could go forward; the men connected with other trades having to do with building could find employment, and no work, public or private, need be stopped because of the strike.

"We have on hand ready for delivery more than 175,000,000 of brick. There is no brick famine. But the labor leaders have refused to permit the teamsters to deliver the brick to the contractors, in an effort to bring pressure to bear upon the manufacturers. Because the labor leaders refused to allow the delivery of the brick on hand, more than 150,000 men are out of work. Carpenters, plumbers, plasterers and all of the building trade workmen are automatically prevented from working because they cannot proceed until the brick work is finished.

"It has been estimated that $18,000,000 a month has been lost in wages by the men who have not been able to work because the 2,800 brickmakers will not withdraw their arbitrary demands nor allow the teamsters to deliver the brick now on hand. The contractors and real estate men have been hit hard. They have lost millions. This trouble could be settled tomorrow and these millions of dollars would not be lost and the families of the men who want to work, but cannot, will not suffer."

In a statement made to the special concil committee, the views of the brick manufacturers were given concerning the strike. In part the statement follows:

"Upon condition that work is immediately resumed we will agree to renew the old scale of wages, providing satisfactory working rules are established. By that we mean each manufacturer shall have the right to discharge men who are not doing satisfactory work without being called upon to account to the representatives of the union. This right we must insist upon.

"In order that you may understand the character of our business, permit us to say that, even during the most favorable times, we have found great difficulty in paying dividends to our stockholders and associates. Ordinarily a plant once established can continue in operation for an indefinite period, but in our line we must make calculation for the exhaustion of the clay from which our brick is manufactured. We have to consider also that our plants are so exposed that it is difficult, if not impossible, to obtain insurance upon them.

"The wages paid to the brickmakers in and about Chicago are the highest in the United States, while the price of brick to the consumer is less than in other large cities—for example, Boston, New York, Philadelphia,

WILLIAM SCHLAKE,
President Illinois Brick Company.

Cleveland and St. Louis.”

In support of this statement, Mr. Schlake presented a comparison of the wages paid Chicago brickmakers with the average paid the works in yards in twenty-seven different cities. His statement follows:

“It may interest you to know that the wages paid to the brick-makers in and about Chicago are the highest paid in the United States, while the price of brick to the consumer is less than in other large cities; for example, Boston, New York, Philadelphia, Cleveland and St. Louis. We have gone to the pains of collecting wage statistics in brick yards located in twenty-seven cities in the country, with many of which we compete. It would make this explanation too long if we were to go into every detail, but this information will be supplied to your Committee if you desire it. In order that you may see for yourselves that we are paying a liberal wage scale, we submit the average wage scale in the twenty-seven yards referred to:

	Average wages per hour, cents.	Minimum wages in the Chicago territory, cents.
Steam shovel engineers	30¾	50
Common labor	19½	33
Hoist men	19⅔	36½
Granulator men	20½	35
Machine men	23½	40
Belt boys	18¾	37½
Car shovers in dryer and transfer men	18	35
Shovelers and car men in clay pit	19⅔	37½
Truckers	22	35
Burners	30⅓	35 to 42
Loading burned brick	20½	—
Contract price loading brick	33¼	39 to 43
Engineers	38	50
Traveling crane operators	22½	37½

“Other men in our employ at piece work receive from four to seven dollars a day and, altogether, receive the highest wages of any men in similar lines in any place throughout the country.

“An increase in our own yards would make it impossible for us to compete in any of the localities in which we now compete for business, and as a result we should have to curtail our production of brick and many men would be thrown out of employment.

“The chief argument used by the labor representatives urging an advance in wages, was that the increased cost of living demanded that higher wages should be paid to the men. To this we reply, and we ask your Committee to consider, that brick manufacturers are obliged now to pay higher prices for oil, wood and coal for machinery used in manufacture, a very large increase in liability insurance since the enactment of the Workmen's Compensation Law, increased freight rates and other expenses in connection with the manufacture of brick, besides a large increase in taxes on the real and personal property owned by the brick manufacturers.”

Representatives of the Brickhandlers' Union made no reply to the statements made by Mr. Schlake, and it was thought that at the second day's conference, an answer would be ready that would set forth the Union's side of the controversy, and in such a way that it would be easy for both factions to find a common ground upon which to build a lasting peace. It was a bitter disappointment therefore, to the building world of Chicago when the committee adjourned at noon, Friday, May 1, with little prospect of settling the trouble which, it is asserted, has tied up building contracts involving $25,000,000 and thrown 150,000 men out of work. Neither side has offered any great concessions in the matter of wages, and although it is reported that there are 175,000,000 brick in the yards, builders complain that they are unable to get them hauled. Alderman Healy said that officials of the Bricklayers' Union had informed him that out of a total membership of 7,000 not more than 700 men were at work.

The ultimatum to the council committee was delivered by Eli Felsenthal, attorney for the manufacturers. He said that the employers would not consent to arbitration of wages in which they had no voice and would go no further in producing testimony to support their contentions.

“We cannot and will not submit to this committee the question whether we should pay more wages to our men,” said Mr. Felsenthal.

Brick manufacturers and their representatives in leaving the meeting charged that Attorney Jacob LeBosky, representing some of the allied labor interests, was trying to browbeat them and stir up hard feelings between the employers and the men. They declared they would not sit in conference as long as Mr. LeBosky was present.

“We are not going to let Mr. LeBosky settle this for us,” William Schlake, president of the Illinois Brick Company, told the committee. “He is trying to bring politics and everything else in here to coerce us and stir up antagonism. He can't do a thing here. Mr. Chairman, we will not meet with this committee while Mr. LeBosky is present. We are willing to take the men back at the old scale and leave the part now in issue to arbitration.”

This suggestion did not meet with favor on the part of the employes.

Mr. LeBosky predicted a wave of crime unless the employers met the demands of the men.

The last session of the aldermanic committee which is acting as mediators was given up to the unions, the manufacturers having submitted their version of the situation the day previous. Frank Karsten, president of the Brick, Tile and Terra Cotta Workers' Union, was the spokesman for the men who are on strike.

“We almost agreed regarding working conditions, and if we can get the desired increase in wages there will be no trouble regarding working conditions," said Mr. Karsten.

"All that we are demanding is a living wage, and if our laborers are granted their demand they will be receiving only about what the poorest paid building laborers receive. We were willing to make important concessions to the manufacturers, only we were told that the employers would not consent to an increase of 1 cent an hour, and therefore withdrew the concessions. The majority of our workers are men who receive from 33 to 35 cents an hour."

Before the crash-up, Karsten told the committee that Chicago brickmakers work on an average seven months a year. He admitted the contention of the manufacturers that Chicago brickmakers are paid higher than in any other city, but he said brickmakers in other cities work practically twelve months a year.

"The Chicago brick manufacturers are able to store away enough brick in seven months to last them the whole year," he said. "This is due to their equipment. By having modern machinery the men are forced to speed their work. This method gives them five months of unemployment. The sum total of our wages for the seven months is much lower than the sum total paid to brickmakers in other cities."

At a meeting of the Building Trades' council, which comprises practically all of the unions engaged in constructional work in Chicago, resolutions were adopted indorsing the stand taken by Le Bosky before the committee. Mr. Le Bosky was appointed as special representative of the Building Trades' council during the mediation between the manufacturers and the brickmakers.

Late Monday afternoon, May 4, an insistent rumor pervaded the "Loop" district in Chicago that the strike would be settled within twenty-four hours. No one seemed to know where the story originated and members of the city council were non-committal.

These Men are Candidates for Degrees in Ceramics at the University of Illinois. Reading from Left to Right, they are: Top Row, M. A. Buttonmaker, F. A. Kirkpatrick, R. R. Danielson and S. I. Sewell. Bottom Row, C. L. Walduck, H. C. Arnold, W. E. Bow, R. A. Horning, T. N. McVey and K. E. Rockhold The other Members of the Class that will have its Commencement Day June 16th, 1914, are: P A. Handke, H. G. Schurecht and E. J. Anderle.

Budding Ceramists at Illinois University

Some of the Men Whose Names Will be Written Into Clay History Within the Next Decade. Five Have Already Accepted Positions in Clay Plants

THE NINTH YEAR of instruction of the Ceramic Department at the University of Illinois which is drawing to a close, has been a very successful one. In September, eighty-four men registered in the four year courses in ceramics and ceramic engineering. Although the department offers no short course, no special students registered during the year. The two weeks industrial course for the benefit of those actively engaged in the industries was given in January. Fifty-one men registered in the course.

Up to the present time, thirteen men have received degrees in ceramics, and this year there are thirteen seniors who are candidates for degrees on Commencement Day, June 16th. To date, five of them have secured positions which they will take at the close of school.

They all realize that the opportunity is the first consideration and that the starting salary is of secondary importance. Every man is looking forward to the time when he will lay his diploma on the whatnot, doff his cap and gown, and, consigning them to the ravages of the moths, proceed to muss up a perfectly good pair of overalls making his start in the practical end of clayworking.

Open Price Policy Works Smoothly

Chicago Face Brick Association Finds Solution of Vexing Problems in Plan Outlined by Arthur Jerome Eddy

WORKING smoothly under the "new competition" of Arthur Jerome Eddy's plan, the Chicago Face Brick Association has held three meetings and has developed its reporting system to a point where the exchange of information on all orders booked is now made daily, with prices at which the orders were taken appended.

The filing of quotations made is progressing, and while it is only fair to believe that a perceptible percentage of quotations are withheld until the order has been closed, (due to the various salesmen's feeling that "the fewer after the job, the greater the chance of the few landing it,") this feature of the plan is growing stronger every day, and fewer figures are being held back.

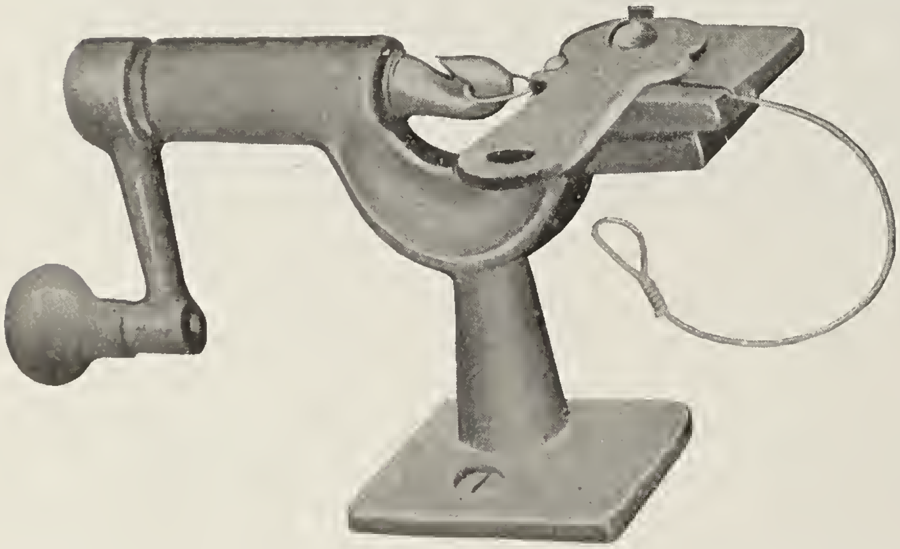
Chicago is almost alone among cities of size, in its custom of taking orders for face brick without any writing other than that which forms the printed form of acknowledgment. As a consequence, for the present, at least, the fact that an acknowledgment, setting forth quantities, prices, terms and date of delivery is considered as evidence of the order's being booked.

A start has been made in the filing of inventories of stock on hand in the various yards in the city and this has already worked to the mutual advantage of the membership, enabling them to buy brick from each other to start and, at times, complete operations that otherwise would be held up for several days. Samples of each brick handled are filed with the secretary and it is very easy for one member to sell another member's brick, if he has no stock of his own that pleases the prospective customer.

The Chicago Face Brick Association, although of several years' standing, is almost an infant, so far as the Open Price Policy plan is concerned. It is, as a consequence, feeling its way, taking up one feature after another, and only as fast as one point has been tried out and firmly established.

The members are all convinced that the "new competition" is correct, and that it will meet every condition that may arise. They are individually and collectively enthusiastic, and are working under the guidance of Mr. Eddy, in order that they may avoid the pitfalls into which other associations have fallen—associations organized under the same plan, but "going it alone" with the idea of saving a lawyer's fee. The plan is all right until the place comes where something needs adjustment to particular conditions—then, as a rule, these societies have chosen a wrong path, to the utter demoralization of the organization and the defeat of its aims.

A Handy Little Wire Twister



The Marion Machine, Foundry & Supply Company, Box 395, Marion, Ind., offers a clever little device for twisting cutting wires, which should be a part of the equipment of every stiff-mud plant. This sturdy little machine, the manufacturer says, not only twists the wires better, and makes a stronger loop, but does it all so quickly that it pays for itself in a very short time. A recent circular put out by the Marion Company brought, in one day's mail, orders for twenty of these machines. The price—five dollars—is trifling, considering the importance of the correct looping of cutting wires, and the frequency with which these wires must be renewed.

American Face Brick Association Will Take Action on Panama-Exposition May 12th

¶ Secretary Hollowell, of the American Face Brick Association, advises that when the Board of Directors of that organization meets May 12th, it will take action on the proposition of installing an exhibit at the Panama-Pacific Exposition.

¶ What are the other clayworking associations doing?

¶ Will a concerted effort, in which all clayworkers join, be made to show burned clay constructional materials to the millions who will visit the World's Fair of 1915?

¶ Or will they beat an undignified retreat and leave the field to cement and gypsum?

Cost Figures in Plant Administration

By Dwight T. Farnham

General Manager Denny-Renton Clay and Coal Co., Seattle, Wash,

The following contribution on cost figures in clay plants is by a man who writes from experience and offers the clay worker practical suggestions for an effective system. The article as it appears here is an extract from a paper which was read before the 1913 *meeting of the American Ceramic Society and appears in Vol. XV of the Transactions, which has just been issued.*

THE COST SYSTEM should originate in and be built to fit the business, not the business hampered and constrained to conform to the cost system. Many an expensive cost system has been discarded because it led to conclusions which the men actively engaged in the process of manufacture could prove to be erroneous. It must not only be born in the business and of the needs of the men at the heads of the manufacturing departments; but it must change continually, following closely the evolutions of the process of manufacture.

. This can only be accomplished by the active executive feeling the need of the system and keeping in closest touch with the department which turns out the figures. It is a case of co-operation throughout, the cost system being so constituted by the accountant as to be of real assistance to the superintendent, and the superintendent so feeling the need of the cost system as to render every possible assistance to the accountant. Without this co-operation the best system will fail.

Many successful business men feel that an annual statement is sufficient in the way of a cost system. This has been aptly termed the "bag" system of accounting. The manufacturer in question, in effect, secures a sack and into it puts all the money which comes in, paying out from time to time such sums as are necessary, and at the end of the year dumps the bag and pockets the contents. This is all right unless the contents happen to consist of an accumulation of I. O. U.'s. When things come to this pass, he either goes into bankruptcy or institutes a cost system which will analyze his business and show him where the leaks are.

The other extreme is the cost system which is so complicated that the busy executive has no time to puzzle his way through its intricacies, and in consequence, disregards it, so that the business is just about as well off as if it had the "bag" system.

The effective cost system, of course, lies somewhere between these two extremes. It is so designed as to bring out the really salient points and subordinate the mass of detail in such a way that details can be studied in time of need but may be disregarded when the business is running smoothly. This matter of the subordination of detail will be elaborated upon later. It is a good plan, however, to overhaul your cost system at least once a year and prune out such parts as can be dispensed with. What appeared as valuable data when it was first worked out very often becomes dead matter in a short time, and it is only by frequent and heartless scrutiny that the cost system can be kept at a high efficiency. Keep in mind continually that the cost of preparing this data is a dead weight on the business, and make every bit of the cost system work hard and produce results sufficient to justify its existence.

Another thing, the cost system should be simple enough so that the analysis of the business can be made before the actual details of manufacture for the period are forgotten. The autopsy must be performed before the murderer has had time to escape. If the executive does not secure his cost data until a couple of months after, he is not likely to feel like going out and praising his men—or the reverse—for something that occurred so long ago as to be lost in the dim forgetfulness of ancient history.

It is a good thing to have some daily costs, so that the executive knows just where he stands on the more important operations each night. Perhaps it may be found advantageous to roughly figure certain department costs each week, and then at the end of the month the carefully compiled costs for the whole month will give the executive head the opportunity to sit down and calmly and coolly analyze the cost of operating each department with a view to increasing its efficiency, and so cutting down the total cost of production.

We are taking, for purpose of illustration, a cost system which has been used extensively in the East and West to keep track of the operations around a sewer pipe plant—say in what is known as a "one press shop."

In order to make the matter clear, we will assume that the clay is delivered on the dump in mine cars, is ground in two dry pans, tempered in three wet pans, is made into small pipe by a press on the second floor or into large pipe by a press on the first floor, dried on one of the three drying floors, and burned in twelve 30-foot kilns. Also, that the plant is equipped with standard boilers, a 200-H.P. engine, the usual conveyors and elevators, etc., and a miscellaneous crew consisting of about one-fourth intelligent labor and the balance what you can pick up for $1.50 a day.

It may be stated that the costs used in the following tabulation are not actual, although they closely approximate the cost of labor and supplies obtaining in Pennsylvania and Ohio in 1905, with common labor at $1.50 for ten hours, coal at $1.50 to $1.75 per short ton, and clay at $0.50 per ton delivered.

These are the costs which will interest the superintendent when he sits down about the middle of the month following and carefully analyzes the cost of each operation for the month previous. During that month he has had daily reports showing the tons or list value of the pipe made each day, the number of hours run, the list per hour run, the cause of each shut-down, and the number of men in each department, possibly, also, the total wages for the day, so that he has known in a general way just how things have been going. Of course, any number of plants are run without this daily report, plants where the superintendent's efficiency* is judged by the number of pairs of shoes he can wear out in a month and by the distance his voice can be heard. If you believe in that sort of plant administration, you probably stopped reading at the bottom of the first page, so that any discourse as to the errors of this type of superintending would not even reach you—much less convince you.

For the benefit of those unfortunates who have to combat the advocates of the "shoe leather" system, it may be as well, however, to point to the common sense analysis of the matter. There are at least ten separate departments covered in the following tabulation—ten different gangs of men. This means that the harrassed foot racer who is responsible for the efficiency of the work of each crew can devote just one hour of the ten to each department—while the other nine hours each crew does as it pleases.

We are not discussing the organization of the plant, the relations of the superintendent to his various foremen and sub-foremen; but we have always believed that a plant should be so organized that it will run itself as far as the routine work goes, leaving the superintendent free to throw himself into the breach where his superior training and knowledge are most needed.

At any rate, the superintendent can only be in one place at a time, and his chance of keeping all his crews working at a high efficiency is greatly increased if every night, or early the next morning, he is handed a slip of paper which tells him just what each crew has accomplished during the day. The company's position is also much more secure where a careful record of this sort has been kept. When a superintendent drops out, he does not take all the experience he has gained at the company's expense with him. There are records which the next man can profit by, and there is less chance of the plant being turned into an experimental station for the education of superintendents.

The costs for a single month are of little value taken alone. It is when they are compared with the preceding months and the fluctuations noted, and the investigations on the yard begun, that a cost system begins to pay dividends. The cost of grinding is higher; why? It is lower; why? The answer leads to a reorganization of the crew, or to the installation of labor-saving devices, and when the cost of the operation ceases to show violent fluctuations and remains uniformly low, the superintendent can tackle another problem. It is a very good plan for the superintendent to plot his costs on graph paper; then he has the whole thing spread out before him and fluctuations are much more noticeable.

One of the first things to do, once the system has been installed, is to determine the relative importance of the various operations. It will be noted that this phrase heads the third column in the tabulation. After the costs for the month have been determined, it is a good thing to figure out just what percentage of the whole cost is represented by the cost of each operation. The various operations are then given numbers as in the third column, which show their importance in the scale.

It will not be possible to analyze each operation given in the accompanying tabulation. One or two examples, will, however, be sufficient.

We will begin with No. 1, kiln coal, which costs, say, $1.60 per ton, and of which half a ton is required to burn a ton of burned sewer pipe. The question is how to reduce this cost of $.80 per ton. Perhaps we can buy a cheaper coal and by careful attention to the details of burning, bring off our kilns with the same amount of coal without decreasing the quality of our ware. Perhaps we can use a coal that costs more per ton, but of which so much less is required that the ultimate cost per ton of burning ware is cheapened. In either case the saving is immediate.

While making these tests we must carefully weigh or measure the coal and the ashes so that we do not lose what we gain in coal cost by an increased stable cost, or by having to increase our burning force on account of the extra difficulty of cleaning fires because of the greater tendency of the new coal to clinker and stick to the brick work.

TABULATION—SHOWING MONTHLY COST OF LABOR AND MATERIAL IN A SEWER PIPE FACTORY.

Operation	Cost per Ton	Percentage of Total	Relative Importance of Operations
Wages			
Moving clay—cars to dry pans	$0.03	0.8	12
Grinding—dry pans	.06	1.6	9
Mixing—wet pans	0.5	1.3	10
Making press crew	.34	9.0	4
Finishing and drying—floor crew	.12	3.4	7
Setting—floor to kiln	.25	6.6	5
Burning—burners and firemen	.20	5.3	6
Hauling coal and ash—carts and horses	0.3	0.8	12
Kiln cleaning—cleaning	.02	0.5	13
Drawing—kiln to yard or cars	.25	6.6	5
General labor—miscellaneous	.10	2.6	8
Repairs to buildings	.03	0.8	12
Repairs to machinery and equipment	.07	1.8	9
Repairs to kilns	.04	1.0	11
Repairs to tools	.01	0.2	14
Superintendence	.12	3.4	7
Total labor	$1.72	45.7	
Supplies			
Repairs to buildings	$0.04	1.0	11
Repairs to machinery and equipment	.05	1.3	10
Repairs to kilns	.10	2.6	8
Repairs to tools	.01	0.2	14
Miscellaneous supplies	.07	1.8	9
Stable—labor and supplies	.05	1.3	10
Clay—cost at storage	.50	13.2	2
Kiln coal—cost in bunkers	.80	21.2	1
Steam power—labor, coal and supplies	.40	10.6	3
Total supplies	$2.02	53.2	
Total labor and supplies, cost per ton	$3.74	100.0	

NOTE—At $3.75 per ton, sewer pipe will cost from 8 to 9 per cent of the list for labor and supplies, which will bring the total cost sold, f. o. b. cars at plant, up to 13 or 14 per cent of the list or card.

The second method of decreasing the coal cost per ton of ware burned is by a careful analysis of the burning. For all practical purposes the rule is a safe one that the quantity of coal burned varies directly as the hours the kiln is burned. The quicker you can burn off your kiln of ware, the less coal you will use. Economy along this line means an intimate knowledge of the clay being treated, and progress must be slow if heavy losses are to be avoided.

For the sake of brevity, we will say the burning of this particular clay divides into the three simple periods, water smoking, oxidation, and vitrification, the first period extending from the atmospheric temperature to 650 degrees C., the second from 650 degrees to 750 degrees, and the last from 750 degrees to 1,100 degrees.

A pyrometer is not absolutely necessary; but with it you will reach your conclusions much more rapidly and with less loss, and you can reproduce a given set of conditions with much greater accuracy.

We will assume that the burns have been satisfactory as far as the quality of the ware is concerned. Our object is to cut down the time—and coal—and still hold the quality. Needless to say, we make sure the kilns to be used in the test are clean and in good condition, and that all ware set is thoroughly dry.

We begin by cutting down the water smoking period, say a three hour period at a time, until we have a few blown pipe; then we stop, completing each burn and studying the results before beginning another experimental burn along the same lines. Meantime, in order to save time, we may have been cutting down the oxidation on another kiln, and the vitrification period on another. It is best not to shorten two periods on one burn lest the troubles arising be laid to the wrong period.

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*In this paper we use the word "efficiency to denote the amount of work done in a given time, taking the quality of the work into consideration.

By a careful process of elimination, making sure always that the burning conditions are as uniform as possible, the time is reduced, first in the three hour periods, and later by hour periods, until the shortest safe burn is determined, and the lowest coal consumption established. I knew an old burner once who said he was never sure he had cut his coal to the limit unless he had one slightly blown pipe, and one slightly swelled pipe, when the kiln was drawn. This is skating on pretty thin ice, however, and is not advised. By careful work it is possible to establish a regular schedule for burning dry pipe, one slightly longer for damp pipe, and one which is safe when, as sometimes happens, the pipe are set very damp, and for the head burner to hold his foremen to these time tables with very little variation. Such a system, once firmly established, insures the lowest practicable coal consumption.

The second highest item on the tabulation is clay. In order to cheapen this, the superintendent must go out of his province under the factory conditions we have outlined. Even so, it is advisable for him to take an intelligent interest in the clay mining. He may be able to use a clay which can be more cheaply mined, or he may by insisting on a more careful selection, be able to increase his percentage of No. 1 ware.

The third item is important. Steam power is worthy of the deepest study. The purchase of coal should be given close attention as in the case of the burning. The field is, however, somewhat wider, as we have no percentage to contend with. We can use the cheapest coal we can buy, provided the extra amount required does not cost more than is saved by the cheaper price per ton, and provided additions to the firing crew can be avoided.

By the use of dutch ovens and mechanical stokers, refuse coals can be used, which cost little or nothing. These solve the labor problem and cut the firing expense to a minimum. By the use of such a device, six hundred horse power can be handled by two men, using coal 75 per cent of which will pass a 20-mesh screen. The chance for investigation and improvement in the usual clay-plant boiler room is almost unlimited, and as we have seen, a saving here is the third most important saving about the plant.

The fourth item, making, is largely a matter of output, and this is by long odds the most important thing to watch about the plant. We have seen how the careful superintendent has kept watch of his output with his daily reports. The effect of increased or decreased output, not only upon the making but upon the whole cost, is perhaps best seen by means of the following calculation. In the tabulation the cost per ton is found by dividing the monthly wages by the tons processed. We have assumed a making divisor of 1,200 tons (monthly production at press). This divisor is properly used in the following operations:—grinding (the same number of men operate the dry pans regardless of whether 50 or 70 tons of clay are ground in a day, etc.), mixing, making, finishing and drying, general labor, repairs to buildings ,machinery and tools, and superintendence. The supplies divided by the tons made would properly be supplies for repairs to buildings, to machinery, and to tools, miscellaneous supplies, stable and steam power. Some other items would be affected by the output, such as burning, etc., but we have left these out to offset any slight additional labor required by an increase in output in the operations enumerated above. The cost added to a ton of clay when acted upon by the above departments is shown in the tabulation for 1,200 tons as $.90 for labor and $.62 for supplies, or $1.52. Multiplying this by 1,200 tons, we find the pay roll for these items for the month amounted to $1,080, and the bills for the supplies to $744. Therefore, for $1,824 we put 1,200 tons through these departments.

If, now, our output had fallen to 1,000 tons, inasmuch as the cost of maintaining these departments is the same, whether we put through 1,000 or 1,500 tons, our cost per ton would have risen $.30 ($1,824 divided by 1,000 equals $1.82 per ton, less $1.52 equals $.30) and we would have lost approximately $300 at the plant, to say nothing of the profits on the other 200 tons of ware we did not make.

On the other hand, if we had turned out 1,500 tons our cost per ton for these operations would have fallen to $1.21, a saving of $.31 per ton or $465. Therefore, if we make 1,000 tons instead of 1,500 tons, we lose about $765 during the month at the plant alone. It is very evident why a man who can maintain the quality of the ware and at the same time boost the output to the limit at all times is always in demand as a superintendent.

The two items which rank fifth, drawing and setting, are largely a matter of kiln location and yard arrangement. Burning has been discussed in connection with coal economy. Superintendence and finishing, in seventh place, have been touched upon in connection with output.

General labor should be kept as low as possible, inasmuch as it is likely to lead to abuses on the part of foremen; and you never know just what comprises this item, so that the charge is not comparable from month to month. If you require your foremen to enter on each man's card just what he was doing during the day, you have a check on the foreman's methods, and loss is often avoided. Nothing should ever be entered under the head of general labor except in the factory office. Kiln repair supplies and labor are largely a matter of kiln building.

The items ninth in importance have been covered in connection with output, as have also the tenth, and repairs to buildings under eleven.

Moving clay is largely a matter of proper dumping, conveying and storage facilities. Hauling coal is similarly dependent upon mechanical and storage equipment. The cost of hauling ashes is governed by the distance the dump is located from the kilns. It is a good plan to follow up your cartmen with a stop watch occasionally while you are measuring your ashes on a coal test. You may not by so doing save a man, but you may save enough of his time to keep your yard cleaned up and get a good many odd jobs attended to.

We have indulged in some generalities, and we have covered briefly a few specific operations; sometimes it has been necessary to sacrifice clearness to brevity. An exhaustive discussion would fill a good many hundred pages. In summing up, we cannot dwell too strongly upon the necessity of mutual trust and co-operation between the accounting and operating departments. The superintendent's problem is to realize what is most vital about a plant and then to concentrate on that. Output and quality he must keep always before him. Efficiency means these two coupled with common sense in labor matters, and if it is not too much to ask, a little mechanical ingenuity and on occasion the gift of prophecy —and the surest prophecy is grounded upon a study of past events as shown by intelligently prepared cost figures.

Section of Pacific Highway, Between Kent and Auburn, King County, Oregon. Opened Up for Traffic in Spring of 1913.

Brick Paved Highways in the Far West

Four Million Dollars Will be Spent Within a Few Years in the Pacific Northwest—Every Indication Points to Brick

UP TO THE year 1912 the Pacific Northwest had spent fabulous sums in the building of what was then called good roads. In constructing these various highways, a number of materials were experimented with and the result in each case was failure. Some time in 1910 or 1911 the motor truck with its destructive weight and speed entered the Pacific Northwest country and worked havoc with all the so-called permanent highways.

The State of Washington under plans and specifications drawn by its Highway Commission and under its own supervision, constructed what was then considered the highest type of water-bound macadam road in King County, Washington. While for this type of road it was a first class job, when the motor trucks got in their work, the road lasted but a few months and has since then been resurfaced with vitrified brick.

Different types of water-bound macadam, asphalt, and bituminous macadam together with various other treated roads such as oil, tar and asphalt were all tried out successively and in each case, after a few months' wear, they proceeded to fall down and did not prove up to what their sponsors claimed for them.

Vitrified brick in the Pacific Northwest is the most expensive material as far as first cost goes, and this militated against its being considered. Up to the year 1912 repeated efforts had been made on the part of the brick manufacturers to lay some of the country highways adjacent to the city of Seattle with vitrified brick wearing surfaces. At each attempt they were confronted with the statement that the community could not stand the cost.

In the Spring of 1912 the Denny-Renton Clay & Coal Company made a vigorous campaign to secure at least one small stretch of brick in order to show that although its original cost might seem high, it would be the cheapest in the long run. After a six months' fight it succeeded in getting a three-mile stretch near the city of Kent which is about twenty miles south of Seattle.

This road was constructed and opened to traffic and to-day it is in absolutely perfect condition, giving promise to remain so for the next twenty or twenty-five years. When the wonderful success of this road was recognized by the different officials and the public at large it became apparent that the time was ripe to still further its use as a country paving material and from that time until December, 1913, the following roads were constructed throughout this territory.

During the Panama Pacific Exposition to be held in San Francisco in 1915 there is promise of a great many tourists either coming to the fair or returning home by the way of Seattle and the number of miles of permanently improved highways will be a revelation to the visitors who imagine that the Pacific coast country north of San Francisco is an ice-bound land where Esquimaux and gold seekers constitute the major portion of the body politic.

Road	Location	Base	Width	Miles
Kent	South of Kent	5 in. concrete	16 ft. 10 in.	2.9
Puyallup	Puyallup	4 in. concrete	16 ft. 10 in.	.75
Kittitas Co.	Ellensburg	4 in. concrete	16 ft. 10 in.	1.18
Snohomish	Stanwood	6 in. concrete	18 ft. 10 in.	1.00
South Trunk	Auburn	5 in. concrete	20 ft. 10 in.	3.10
Bothell Road	Bothell	5 in. concrete	18 ft. 10 in.	3.33
North Trunk	North 85th St.	5 in. concrete	18 ft. 10 in.	6.13
Meadows	South City Limits	Macadam	20 ft. 10 in.	1,000 ft.

A glance at the above table shows in an instant the wonderful success of this vigorous campaign for permanent country highways here in the Northwest. All of the above roads are in absolutely perfect condition and have been inspected and commented upon by prominent good roads enthusiasts, highway engineers and automobilists who have visited this section of the country and in every instance the results of their inspection has been a flat unqualified statement of success.

Between Alaska on the north, Mexico on the south and from the Rocky Mountains to the Pacific ocean there is no territory that can compare with King County for the number of miles of permanent highway. It is the best paved county west of the Rocky Mountains to-day and the progress of this most excellent work will continue, for there is, this year, approximately $4,000,000 to spend for good roads.

Where the traffic is sufficiently heavy to demand it, it is almost certain that vitrified brick will be the material used. With the opening of the Panama Canal, the building of a Government railroad in Alaska and the establishing of a regional bank in Seattle, the city of Seattle is just stepping into an era of prosperity never before realized in its history. Thousands of immigrants will go to Puget Sound country and it is a moral certainty that they will locate on cleared off land which is tapped or reached by good highways.

King County's position in this field is second to none, and the credit for this, and for the period of good roads building in the Pacific Northwest is due largely to the continued and persistent hammering of the Denny-Renton Clay & Coal Company which is still preaching the gospel of permanent highways.

Section of Bethel Road in King County, Oregon. Opened Up for Traffic January 1, 1914.

That 1915 will be a year of expositions is already well understood. With the great Panama-Pacific Exposition at San Francisco, Cal., and the Exposition of New Ideas at New Orleans, La., comes another that is worthy of notice—that of San Diego, Cal., for which great preparations are being made. Every one of the many exhibitors who are planning outdoor exhibits and buildings to contain individual exhibits, and all concessionaires have been notified by Director General H. O. Davis that all buildings for exhibits or concessions at this exposition must be ready for installation by July 1, 1914. Four of the big exhibitors who will have buildings of their own are now working on the exposition grounds, and some of the concessions have been begun.

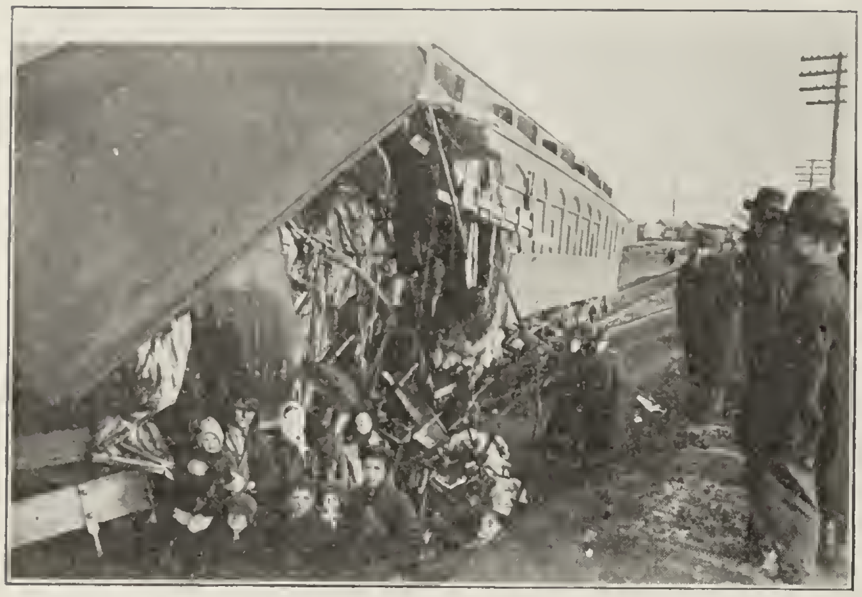
Another month will see the completion of the great reinforced viaduct over Cabrillo canyon, at the west entrance to the San Diego Exposition, permitting the hauling of material for the remainder of the exposition construction work over a much shorter and easier route, and giving easy access to visitors to the grounds. Since the last announcement of progress on the main group of exhibit buildings, a gain of three weeks of time on the schedule has been made, and this part of the exposition work is now nine weeks ahead of schedule. The plantations and ground work are eighty-five per cent complete. Recent rains are causing the plantations to show wonderful growth.

Commissioners of the San Diego Expositon are now scattered over the United States, Europe and Central and South America, securing industrial and commercial exhibits, exhibits of the arts and crafts, archaeological and ethnological specimens, manufactures, and horticultural and agricultural exhibits that will fill the great exhibit buildings. Many spectacular features are being secured and it is expected that a large percentage of San Francisco's visitors will also visit San Diego.

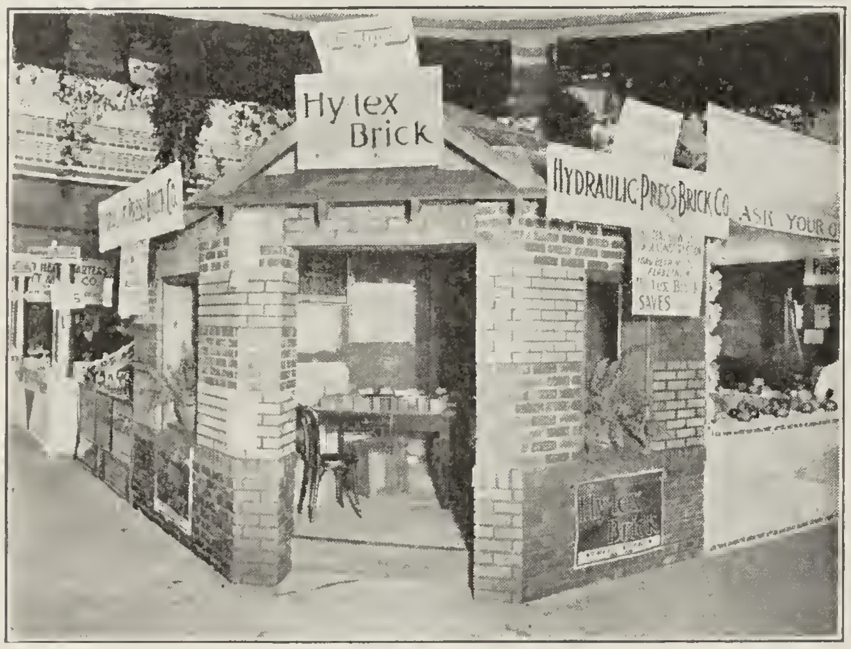
In the Limelight

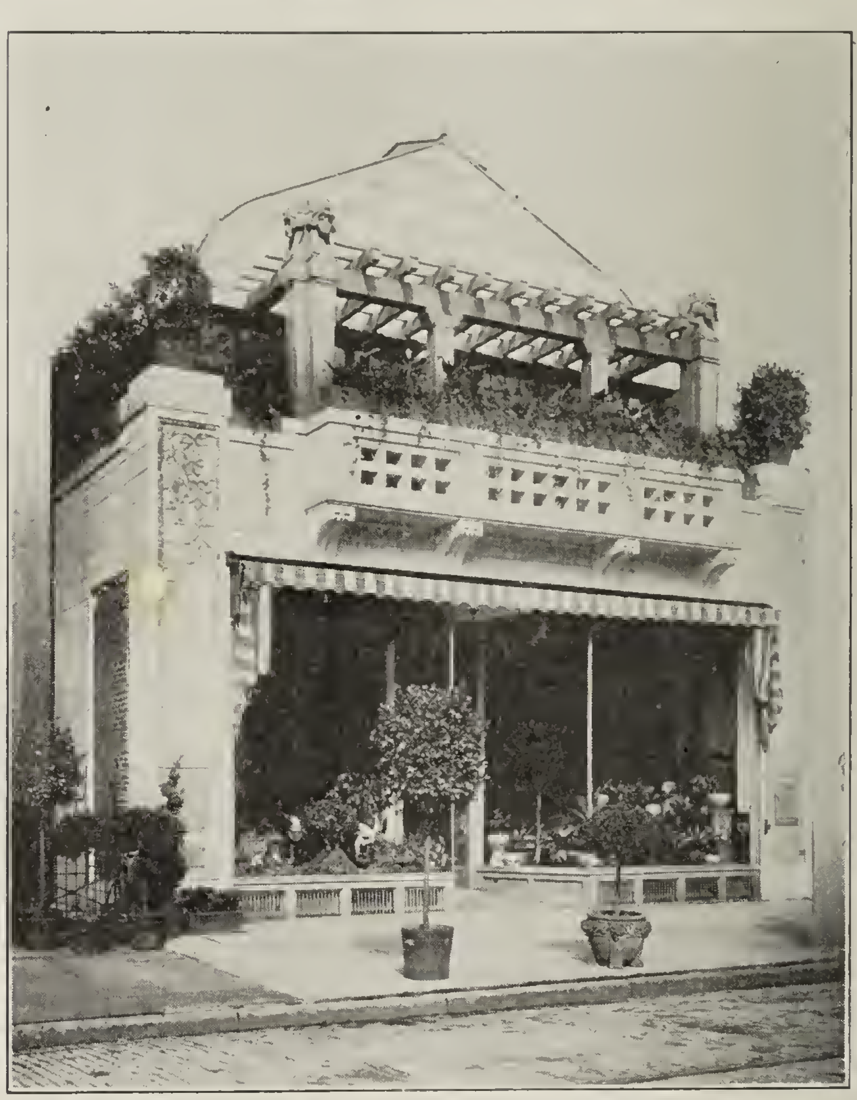
Some Current Happenings That Have an Interest for the Clayworker

"Brick and Clay Record" will pay $1.00 for the best photograph published on this page, each issue. The name of the reader sending the photograph will be published, as well as the story that accompanies the picture. Prints should be of the black, shiny variety to secure good reproduction.



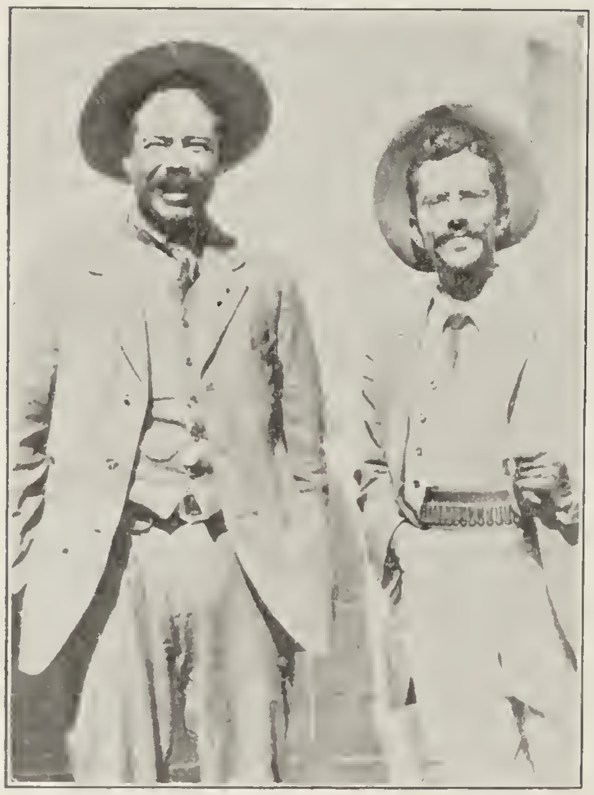
C. E. Baudish and W. H. Shannon, of San Antonio, Texas, two clayworkers, had narrow escapes from death in a railroad accident near Hillsboro, Tex., Feb. 24, in which one person—a porter—was killed and six persons seriously injured. They were enroute East to buy machinery for a new brick plant, which they are to erect at Leming, Texas, under the firm name of the Leming Clay Products Co. Baudish and Shannon can be seen standing near the last coach of the train and just back of the wreckage.





A good example of the use of terra cotta in the facade of a small building. This is the shop of an exclusive florist in Detroit, Mich., and the terra cotta was furnished by the Dresden Brick Company of that city.

The picture on the left is one of the Exhibits in the Low Cost of Living Show recently held at Omaha, Neb. This miniature house is faced with Hy-Tex brick and constructed with a new load bearing hollow tile.



The picture on the left shows General Pancho Villa, now very much in "The Limelight" on account of the Mexican situation. He is the larger of the two officers, the other being Colonel Medina. The picturesque children on the right are a fair handful of the 5,000 Mexican refugees "wished" on Uncle Sam by the revolution in Northern Mexico. These refugees are being housed, fed and partially clothed by the United States Government, at Fort Bliss, Texas, at a daily cost of $3,000. These pictures were sent by Fred H. Lazenby, of the Thomas Moulding Brick Company, of Chicago, who is now in El Paso, Texas, in search of health.

How to Build a Continuous Tunnel Kiln

By George Vater

Mr. Vater is one of the recognized experts on continuous tunnel kiln construction and operation, his reputation being equally well established in Europe (especially in Germany) as in the United States. The following article on construction details is one of a series we have received from his pen, the other two being "Practical Notes on Setting and Burning in Continuous Tunnel Kilns," and "General Rules to be Observed in the Operation of a Continuous Tunnel Kiln."

IN PRESENTING these construction details of a continuous tunnel kiln, it is to be stated at the start that nothing fundamentally new is offered and that only the outline is given of the methods for obtaining a well-balanced and durable kiln structure.

In the actual construction we begin with the foundation, so likewise will we here give consideration first to the part of the structure. The foundations may be built of brick in lime, mortar or spiked mortar, of concrete or of rock. The depth of the foundation depends on the condition of the soil and on the depth of the frost line. Two feet may be sufficient in southern climates and for solid ground, also if a kiln is built inside of a permanent building excluding frost. Always carry to solid ground. A depth of 3 ft. will be the general average.

The width of foundation depends on the condition of the ground and should be figured amply, assuming about one-half of the bearing power of a certain ground material, as the shrinkage of the ground by heating is to be taken into consideration.

In figuring on the weight of the kiln structure take about 125 lbs. per cu. ft. of brick work and filling.

WALLS—The tunnel walls and outer walls must be connected by ribs of one brick thickness, 2 ft. 6 ins. to 3 ft. 6 ins. on centers, the same kind of ribs being employed between the two inner tunnel walls.*

The outer, or "batter walls," are to be laid with joints vertical to batter line. The brace walls (ribs) are to be laid with joints continuing those in batter wall and in perfect bond with batter wall, but not tying into tunnel wall.

The batter of the outside wall shall be about 1 ÷ 3.

The brace walls between the inner tunnel wall are not to be bonded with tunnel walls.

The outer batter wall is to be built of good hard brick laid in lime—or "lime and cement" mortar, and is to be made one and one-half brick in lower and one brick thick in upper part.

The brace walls may be built of A-11's, preferably laid in lime mortar (or in common clay mortar thoroughly worked and mixed with sand to such an extent that it readily leaves off the trowel. The sand, of course, is to be freed of gravel by running over screen of 4 x 4 meshes to the inch).

The "tunnel walls" must always be built of brick that have been burned high enough, and of such material that will withstand successfully the temperature of the kiln and the temperature changes incident to the operation of the kiln.

Vitrified brick must not be used in the face exposed to the fire, as they are brittle and will spall and crack under the repeated changes of temperature.

For ordinary brick at temperatures up to about Seger cone .05 (1922° F.) ordinary hard burnt A-1 brick laid in common clay mortar are sufficient.

For higher temperatures up to about Seger cone 5 (2246° F.) a better grade of clay brick (buff or semifire clay) may be used with satisfaction.

For still higher temperatures fire brick must be used for the faces, of grades that will show a fusion point of at least 5 to 10 Seger cones higher than the average burning temperature in the kiln.

The mortar for the tunnel walls up to Seger cone 5 may be common clay with sand, provided same will stand the temperature. For the higher temperatures fire clay must be used.

All brick should be wetted before laying. Joints must be "shove and hammer" for all work in fire clay or common clay mortar, and as close as possible.

All joints, lime as well as clay mortar, must be perfectly filled, leaving no voids.

During operation any loose joints should be scratched out and brushed full with mortar. Expansion joints, about 1 in. wide, to be left every 15-30 ft. in inner tunnel walls and across tunnel arch.

Expansion joints in outer brace walls are not necessary, and any cracks developing in operation should be subject to immediate repair. After about three to four burns around a new kiln, and after all moisture stored in the walls and filling has been expelled and all cracks have been well repaired, it is best to give the whole outside wall a coat of tar. This tar forms an elastic skin following the expansion and contraction and renders the outer wall air tight. It is advisable to renew this coat of tar annually.

On the ends, which are more subject to cracking than the rest of the outer walls, it is advisable to build a wall one and one-half brick thick midway between the tunnel wall and the batter wall.

The tunnel walls up to spring line should be laid in perfect bond with alternating header and stretcher courses. The thickness of tunnel walls should be two to two and one-half brick. The thickness of brace walls should be one brick, of door walls, one and one-half brick.

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*Where a sufficient quantity of cheap brick are available, it is good policy to build the whole structure solid, not using any filling excepting over the tunnel arch.

FILLING.—The spaces between walls and brace walls are generally filled with sand, ashes, earth or clay.

It is always advisable to plaster the tunnel walls on the faces towards the filling thickly with common clay mortar to avoid sifting of the filling material into the joints and thus ruining the brickwork in the subsequent stages of expansion and contraction.

The best filling material is a kind of concrete work made of broken brick or stone with common clay mortar. The filling has to be tamped thoroughly, of whatever material it may consist, and is to be brought up as the walls are built up, simultaneously in the adjoining boxes, to avoid spreading the ribs and walls out of place.

The filling over the tunnel arch should be of a thickness to make the distance from soffit of arch to top of platting 20 ins. to 24 ins.

TUNNEL ARCH (Crown).—The brick used in this work are common brick, better grade clay brick or fire brick according to the service required. The mortar is common clay with sand, or fire clay.

For a tunnel arch of 10 ft. and less width, wedge brick must be used together with squares. For wider arches this is not absolutely necessary, though always advisable.

When squares only are used with common clay and sand mortar, the joints on the inner face should not be less than ⅛ in. to 3/16 in., as narrower joints tend to breaking off of the inner heads in the expansion under the heat.

When wedge brick are used it is advisable to lay the work tightly with shove and hammer joints.

The thickness of the arch is one brick (9 ins.). The strongest arch is a semicircle. With wide kilns, however, the springline becomes very low, endangering the stability of the intersection of tunnel arch and door arches. It is, therefore, sometimes advisable to use segment arches. The rise of the segment should be at least 1 ÷ 3.

The forms (centers) over which the arches are built, are to be set up in distance of 20 to 24 inches and for a length of 15 to 30 ft. In setting the centers observe that the arch after striking of centers will settle from ½ in. to 1 in. according to width, and that the centers therefore should be set this much higher.

On top of the tunnel arch proper should be laid a rowlock of common brick in common clay mortar.

The spandrels of the tunnel arch should be brought up to a height about on level with the soffit of the arch.

The feed holes through the tunnel arch should preferably be made of large blocks of suitable fire clay material.

The feedhole shafts above the arch may be laid up of brick or may be made of ring-hole tile.

Drop arches, according to requirements, have a depth of 12 ins. to 18 ins., and should be constructed of large sized tile, in order to give them the necessary stability.

FLUES AND FLUE ARCHES—DOORS AND DOOR ARCHES.—Waste gas laterals are to be built of common brick with lining of good hard A-1 brick all laid in common clay mortar or, if high temperature prevails in kiln, laterals may have to be lined with low grade fire brick laid in fire clay mortar.

Main draft flue and watersmoking flues are built of common brick best laid in lime-cement mortar, which gives them greater strength and stability. The arches of these flues are best formed of double rowlock, the inner arches preferably made of arch brick with square brick to match circle.

The door arches on the intersection with the tunnel arch are preferably formed of larger blocks, the rest of double rowlock, with a third one thrown over them in the outer batter wall.

The thickness of all flue walls except the main draft flue should be one brick and the walls of main draft flue preferably one and one-half brick.

The main draft flue, located between tunnels, should be placed as high up as possible.

Ceramic Society Transactions Treats Many Phases

Volume XV, American Ceramic Society's "Transactions," is published. Like its predecessors Vol. XV. is a veritable encyclopoedia of what has been done the past year in investigation and research work by the ceramists and engineers in the clay product field and should repose on the shelves of the library of every clay worker in the country.

Few clay workers understand or appreciate the value of these "Transactions." Practically every phase of the clay working art is treated in the papers published and many difficult problems are solved by men who have devoted their time, energy and money unselfishly that the manufacturer may make dry and burn his wares intelligently, economically and correctly.

The editions of the "Transactions" are limited and members are first supplied with copies. The remaining numbers, usually a comparatively small quantity, are disposed of to those who apply for them at $5.50 a copy for the paper covers and $6.25 for the cloth covers. Volume XV. contains 747 pages, is one and a half inches thick, and 6x9 inches in size. It is, like all the preceeding volumes, printed on good paper from clear type and is one of the few truly valuable publications in the industry. The entire fifteen volumes are sold at $70.50 for paper binding and $81.75 for cloth.

Members of the society get a reduced price—cost, on the volumes. The initiation fee is $10 for active members and the annual dues is fixed annually by the board of directors, the amount not exceeding $10. The initiation fee for associate members is $5.

Prof. Edward Orton, Jr, Columbus, Ohio, is secretary of the American Ceramist Society and remittance for copies of the "Transactions" may be made direct to him or to "Brick and Clay Record" which is authorized to act as a distributing agent.

Efficiency Saves Twenty Per Cent.

A department store not long ago made a systematic effort to effect greater efficiency in the selling of its goods. In the shoe department 20 per cent of the time was saved by a different arrangement of its seats. In other departments similar savings resulted in cutting out all lost motions. All time consumed in looking up goods and in putting them back in inaccessible places was eliminated. The customer benefited as well as the store. The study of the arrangement has shown the one best way. Business is a science, writes a student of business. "Men who study it as a science succeed. The man who reasons and adapts his business to reason wins. Business failure in most cases comes from wanton disregard of principles that are only common sense. Men fail because they do things in the wrong way."

Pleads for the Bricklayers' Trade Schools

By John A. Kelley
Secretary Columbus, (O.) Builders' Exchange

The trade school is the brickworker's salvation, argues Mr. Kelley. The bricklayers' union has limited the apprentice list and cut down the number of workmen until there are not enough in the country to do the work. Mr. Kelley's article is timely.

THE great trouble in the brick business of today and what, to my mind, will be the greatest trouble of the future, is the cost of having the brick laid in the wall. The cost of labor is advancing in every branch of the building trade but it is advancing faster in the brick laying trade than in any other. I have before me a statement of the wages paid in the building trades in 65 American cities. The lowest rate for brick layers per hour is in Atlanta, Ga., where they get 45 cents per hour.

The highest is in San Francisco where they get $7 per day. The average wage for brick layers in these 65 cities is more than 65 cents per hour.

There is no question but that wages will be increased in the brick-laying trade in the next five years, just as they have been increased in the past five years, at an average of about 10 per cent per annum. There is no question about this because this country is producing less brick layers every year and because the brick layers are doing less work every year, individually and collectively.

There is not one brick contractor of my acquaintance who will not admit that the bricklayer of today does only ½ to ⅓ the amount of work that was done in a day 8 or 10 years ago. The reason for this lies of course in the fact that the union has created an artificial monopoly of the supply of labor and has regulated the work so that the fast bricklayer must not lay any more than the slowest man, practically.

I have no quarrel with the union. I am a believer in organization and I believe in organized labor for the betterment of the working men, individually and collectively. But there is no question in the mind of any man who understands the operation of the journeymen bricklayers union of this country, but that they have gone too far in their arbitrary practices. Having got the upper hand, they are abusing their power. The contractors are to blame, greatly, because they have not organized in the same manner as the union men and secured protection. In some cities the contractors are able to cope with the men, but these are few.

The brick makers fall down because they have not long ago come to the assistance of the contractors. Instead, they have actually co-operated in most instances, with the union. If the union black-listed a contractor, the brickmaker refused to sell that contractor. If the union came around with a card bearing the names of the contractors on the fair list and asked an exhorbitant price for advertising space on that card, the brickmaker, or agent, most obligingly took space. And I know of contractors who tore and pulled their hair and made all kinds of remarks about the bricklayers' union before his fellow contractors and on the following day took advertising space in their fair list cards.

The brickmakers have fallen down because in assisting the union they are working against their best interests. The best interests of the brick manufacturers are served only when they can give public material that is endurable and at the same time economical to use. It costs about $15 per thousand to have brick laid up in a wall, where the brick masons are getting from 65 to 70 cents per hour. The brick work on an average eight-room center-hall house will run between $800 and $1000. In other words it costs the owner 1½ or 2 cents each for each brick laid. A very plain eight-room center-hall house today costs $5,000 to build and the brick work is getting to be a mighty big figure in the cost. And the worst of it is that it is bound to increase in cost as wages go up and the masons do less work.

I say all power to the brick mason who has had the brains and the power to force such a condition in the big building industry of this country. I have only praise for them in their audacity but I fear that they are going too far. I fear that some other material will be used in place of brick unless the brick manufacturers and the contractors begin to co-operate and check the increasing cost. I believe that already other materials are making inroads upon the brick business, even in residence construction. And I feel certain that this tendency will grow unless the brick manufacturers and the contractors get together for their own protection.

There is but one solution to the labor problem that I can see. It will take several years to get it into operation generally and several more years before the effects are noticeable. The solution lies in the trade school. In several of our cities the boards of education are giving courses of practical work in the building trades, brick laying being among them. Master Builders' Associations usually help foster these schools. We are endeavoring to get such a school in Columbus, Ohio and the board of education, after practically promising to start a bricklaying school, passed it up because of fear of getting the enmity of the journeymen.

But the journeymen are not opposed to the trade school, that is, openly, at any rate. It would not be American to protest against the opportunity being granted the young men to learn what they please. It would be suicidal for the unions to protest against the trade school because public opinion would be against them from the start.

The lack of mechanics in the brick mason trade is due to the fact that the unions limit the number of apprentices. In Columbus each contractor is allowed one apprentice each year. It is the same practically, in other cities. Now, instead of seizing that opportunity of teaching a boy the trade so that the number of mechanics may be increased, the contractor more often than not, refuses to bother with an apprentice. This is an attitude that I am at a loss to understand, although it may be some expense to teach an apprentice. So, with the unions limiting the number of apprentices to one a year to each contractor and the contractors in many cases refusing to accept the apprentices, I cannot but believe that in ten years from now we will not have enough brick-masons to go around. Such is almost the case now.

The trade schools, will produce bright young men who can read plans as well as lay brick, if they are conducted properly. The journeymen may not take them into the union after they learn the trade in school but public opinion will eventually force them to do it or public necessity will become such that the boys will be worked regardless of the union. I would advocate that the boys join the union, if the union will let them. It does not matter if they belong to the union. It only matters that we get more mechanics and better mechanics, to begin with. And if there are enough mechanics the other matters will adjust themselves.

The brick manufacturers should endeavor to get a bricklaying school in the public schools of every city in this country. They should work in conjunction with the builders' exchanges and the brick contractors. Constant pressure will force the board of education to act, sooner or later. And if it is impossible to get these schools operated by the public, then private schools should be established. And it is to the interest of every tax payer and of every prospective builder of a home that they should help along these trade schools. It took them a good many years to come to it in Germany but they are reaping the benefits now. It a man cannot build a home in this country because of the expense due to the labor cost, it will become a poor country in which to live. And the day is here, even now, when the average workman is unable to meet the heavy expense of erecting a home for himself. It is time to take action for it will be years before results may be obtained.

Portable Loader Saves Motor Truck Expense

THE MOTOR TRUCK has come to stay. Its ability to carry bulk material long distances in quantities unheard of ten years ago, and at a high rate of speed, makes it possible to materially reduce the cost of transporting large quantities of brick, stone, coal, sand, etc. The speed of travel is high as compared with the horse-drawn vehicle. The unloading is automatic, the body being dumped by the mere turn of a lever by the truck operator. In many cases the truck is loaded from an overhead chute, but more often the material to be moved lies on the ground in storage piles, not only in regular storage yards, but in streets, road and wherever most convenient to store. The loading of this material from ground storage piles becomes a different matter. The high cost of loading auto trucks with material carried on ground storage is one of the factors which have retarded the sale of trucks for this work.

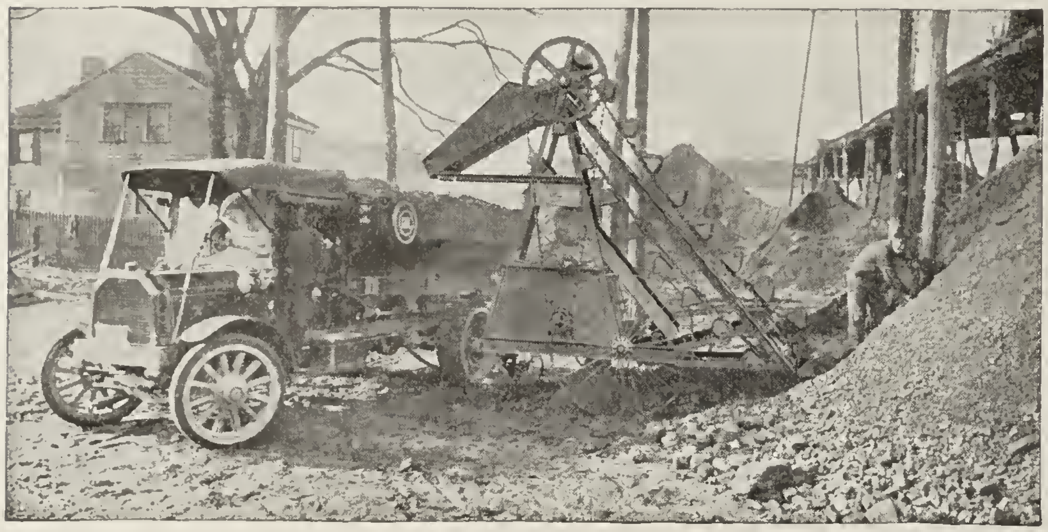


Fig. 1

The truck which is so quick and convenient for handling several tons at a load, must necessarily be high to hold the load. Shoveling by hand means that the truck spends more than half its time waiting at the storage pile to be loaded, and between trucks the shoveling gang is idle. A good average day's work for a shoveler is 20 tons of gravel, less of stone, and slightly more of sand. Not only is the truck standing idle while being loaded, but the loading by hand costs 8 to 12 cents a ton. Here is a bad leak in what should be an up-to-date and efficient job of handling.

The portable wagon and truck loaders effectively stop this leak. Cut No. 1 shows how. A bucket elevator is mounted on large wheels, and with power supplied by a motor or gasoline engine, will load sand, gravel or coal at the rate of a ton per minute. The truck driver trims the truck with a shovel, and one, two or three men, depending on the nature of the material to be handled, trim and feed to the loader. This combination will load the truck at a cost of 2½ cents to 5 cents per ton, the higher cost being that of handling crushed stone, with coal at the low end, and sand and gravel following in order. The saving of about 6 cents per ton thus effected is a large item in these days of close margins and competition, and marks the loader as a useful and necessary adjunct to the motor truck.

There is also a growing demand for a further combination of truck and loader, namely: a truck with loader elevator mounted on the rear end of the body, arranged to lower into storage pile when the truck is backed up to it, and also to raise clear of the ground when not in use. The elevator is supported independently of the dumping body, and is driven through a clutch, by a connection to the truck transmission. This combination results in a truck which can be loaded by its driver with or without a helper in a few minutes, and does away entirely with the necessity for a loader-operator who is idle between trucks.

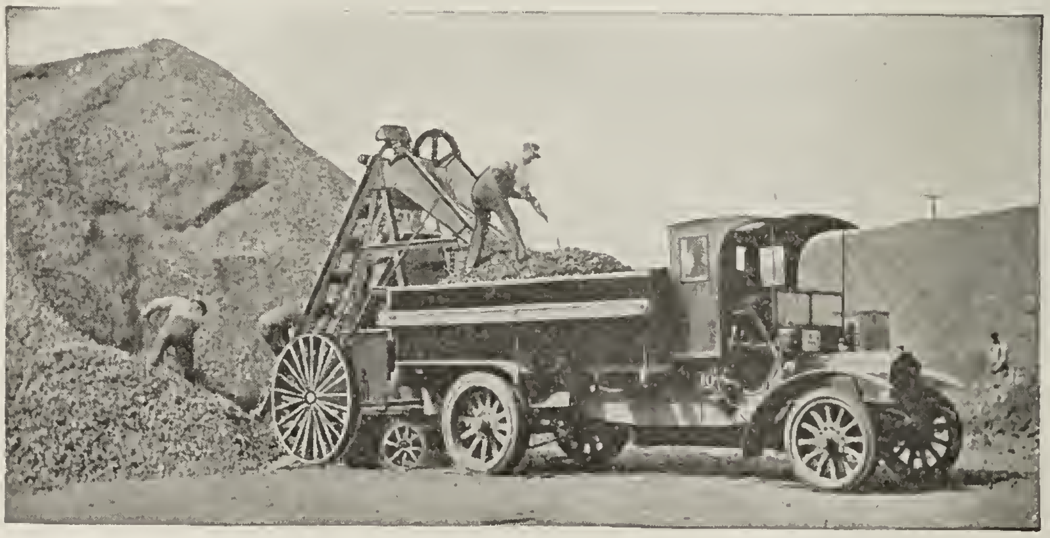


Fig. 2

The loaders described above are made by the Link-Belt Company, Philadelphia and Chicago, and are being used in many places through the country.

Producer Gas

Its Application in Connection With the Continuous System of Burning

By Roy Harden McElroy, Cr. E.

Ceramic Engineer, C. W. Raymond Company, Dayton, Ohio

Roy Harden McElroy, Cr. E.

MUCH INTEREST is at present being manifested in the use of producer gas as a firing agent for clayworkers. What, therefore, is producer gas? A suitable definition might run: "That gas which is obtained through the incomplete combustion of fuel."

Producer gas is rather mongrel in composition, being made up of a mixture of air gas, water gas, illuminating gas, nitrogen, hydrogen, etc. (it is relatively low in heat units as compared with natural gas).

Producer gas made from bituminous coal runs from 130 to 160 B. T. U's per cu. ft. However, there is a sensible heat in the production of producre gas that is not shown in calorimetric readings, the gas coming off at a temperature of from 800 to 1,000 deg. F.

The heat efficiency of the gas, therefore, is increased to some extent, this exact extent depending on the distance of the furnace from the producer. We have seen a producer run so cold that the gas escaping from the pokeholes would not ignite. This means, therefore, that the gas cannot be efficiently used by the ordinary methods found in natural and illuminating gas firing.

Vater says: "The proper field of producer gas, from its nature, is the furnace or kiln which embodies recuperative or regenerative features." (Note 1.) Geizsbeck is much more emphatic saying: "If producer gas is applied along the same principles as used with solid or gaseous fuels in down draft kilns, we do not obtain the regenerative principles of firing, which is so essential in producer gas firing, and unless we apply this principle, any attempts to burn clay products with producer gas will fail." (Note 2.)

Again, Nagel comes out with the following statement: "High efficiency of combustion depends on the thoroughness of the gas-air mixture and on preheating the air. In order to obtain a temperature of bright red incandescence, it is imperative to preheat the air for combustion." (Note 3.) Eben Rogers, the present President of the National Brick Manufacturers' Association, in his address before the Illinois Clay Manufacturers' Association in 1911 corroborates Nagel in this statement: "Unless you build regenerators for preheating the air, which would be an expense which would not justify itself, it would require just as much coal through the gas producer as it does in furnaces, which would mean a tremendous outlay in gas producers."

It, therefore, is only logical that the continuous system should lend itself most readily to producer gas firing. Why? Because all the air used for combustion of the gas can be drawn through the cooling chambers and therefore become highly preheated. Could any more of an ideal

Gas Producers Used with a Canadian Continuous Kiln.

Note 1.—VATER—Paper before National Brick Manufacturers' Association, (1910).

Note 2.—GEIZSBECK—Paper before American Ceramic Society, 1913.

Note 3.—NAGEL—Publication, "Producer Gas Fired Furnaces," Page 38.

Note 4—VATER—Paper before the National Brick Manufacturers' Association, (1910).

A Double Battery Producer Gas Fired Continuous Kiln in Virginia.

proposition be imagined for the preheating of air than a continuous kiln?

Again, must the air be preheated for economical results? A compilation of data gathered from a majority of gas kiln users in the Dominion and the States, shows conclusively that if in any manner the operation of the kiln is delayed and the chambers behind the fire cooled too much, it is almost impossible to raise the temperature in the firing chamber to the required point without back-firing as an auxiliary. Richardson brought this out clearly two years ago before the American Ceramic Society, saying: "We aim to complete the burning of a chamber within 48 hours after putting the gas on it. If it runs much over 48 hours, we cannot make any further progress with it and must move ahead."

The great mass of information so far gathered, points out clearly the necessity of preheating the air for combustion (for the obtainment of temperature ordinarily used in clayware burning), and it is going to take a preponderance of evidence to the contrary to convince the present users of the gas kilns that their experience has been for naught. Producer gas for fuel purposes is used in many industries other than clayworking, but where can you find it not in connection with regenerators?

How firmly established is the producer gas fired continuous kiln on the Continent? Up to the time of the late P. L. Youngren's death about twenty-one kilns were operating or building; forty-four now have been arranged for; of this number, thirty-six are in actual operation, four of these being semi-continuous, four are building; three are idle, due to financial failure of companies operating them, and one has been dismantled after a good period of operation, so that about 90% of the kilns installed are now burning ware.

Two general types of the kiln have been evolved—the tunnel and the compartment. The tunnel variety is very similar in general construction to the coal-fired tunnel continuous kiln with the exception of changes in minor details and the fact that as yet the producer gas-fired tunnel kiln has been built *enbloc*, with no central court, carrying the flues between the two tunnels. It differs though from other tunnel kilns in having a watersmoking system as a part of its standard equipment. Why this has never been generally used in American coal-fired kilns, we do not know. As with most kilns of the tunnel type, the partitions between the sections are temporarily built of the green ware itself, flues in the ware being so arranged with the help of the drop arches, to cause up and down travel of the fire. The sections have so far been built in two general sizes—a 16-ft. wide, 10-ft. crown, 18-ft. length type, holding about 30,000 average sized brick to the section, and a larger, of 20-ft. width, 11-ft. crown, 18-ft. length, holding about 40,000 to the section, experience having taught that sections longer than 18 ft. can only be used at the expense of uniformity of burn. The tunnel type of kilns so far has been solely used in the burning of building brick and allied cheaper products, and if anything, it burns a builder with several per cent less coal than an equal capacity compartment kiln. Our only explanation of this phenomenon is that there are less walls to heat up in the tunnel type.

Owing to the larger number of installations of the compartment type, the kiln has been mainly known through this type. Three general varieties have been evolved. The earliest was the back-to-back variety, resembling the tunnel kiln, being built *enbloc*, that is, the draft flues being placed between the two rows of compartments. In this type, of course, the chambers could be entered only from one end. Then came the single battery type, placing the chambers in one straight row. Several semi-continuous kilns ranging from 8 to 10 chambers were installed in this manner. From this was evolved the double battery type with a court between, and nearly all of the late years' installations have been so made. For the majority of new yards not cramped for room, this has proven to be the most effective.

The chambers are all filled from the central court and emptied from the two extreme outsides, this removing any danger of conflict between the setting and emptying gangs. The *enbloc* or back to back type if anything is a little cheaper to build on account of the less number of walls, and tends to save if anything a little fuel over the other types, owing to its compactness. The single battery installation is very handy in operation, but we would not generally recommend it, only for those cases where the topography of the plant site and crowded conditions justify it.

Its one disadvantage as compared with the other two, arises from the extreme length of the return heat flue, that is, the flue in a 16 chamber variety, which returns the waste heat from No. 16 to No. 1. This objection can to some extent, be done away with, by placing the return flue under the kiln.

The compartment kiln is used for the burning of practically all the commoner forms of clay ware, building brick, hollow-ware, face brick, flashed ware, paving block, drain tile, etc. It has a separate and distinct place as compared with the tunnel kiln, and should be and now is advocated for only the better forms of ware, also drain tile which does not readily lend itself to burning in the tunnel.

What about the amount of fuel required in a kiln of this type? This, of course, depends on local conditions; the kind of ware to be burned, the ability of the operator, and the fuel used. Allow us to present data gathered from the operation of an 18 chamber compartment kiln of the double battery type installed at Toronto, Ontario.

Material Used.

Gray burning glacial drift—calcarious.

Red burning weathered top glacial and flood plain deposit—sandy.

Coal.

Yohoghany three-quarter lump with slack and nut. Cost $4.00 per ton delivered.

Draft Gauge.

Ohio make.

Pyrometers.

Recording and Registering.

Temperature of gas in producer necks 850 to 900 degrees F.

Color of gas, bluish gray with yellow sheen.

Producers.

Three in number; type, 6 ft. water sealed.

Product.

Stock brick, green size 9"x4", burnt size, 8¾"x3⅞", burnt, weight 5½ lbs. Chamber holding capacity 58,000.

Steam Pressure.

On the producer fuel bed 60 lbs.

Draft.

Chamber ahead of fire on admission of gas .5", at finish 0".

Three chambers ahead of the fire on admission of gas 2", at finish 1½".

Burning chamber at finish "minus" draft.

Vitrification Range.

About 25 degrees.

Condition of Brick Burnt.

All hard but not vitrified.

Fuel Consumption.

285 lbs. per thousand brick.

Cost of Fuel.

Per 1,000 brick, $0.57, figuring coal at $4.00 per ton.

Time of Burning.

25¾ hours. Chamber burned No. 6, containing red stock. Gas flues burnt out before starting fire on chamber.

Date of Burn.

November 26, 1913.

Result.

Salable brick 99%, face brick 85%, building brick 14%.

An Arkansas manufacturer burning end-cut common building brick in a 16 compartment kiln at 2,000 deg. F. from red burning clay uses 325 lbs. of coal per 1,000 brick.

A South Carolina 20 section tunnel kiln burning wire-cut builders from red clay at 1950 deg. F. uses 290 lbs. of coal per 1,000 brick.

A Minnesota compartment kiln burning face stock brick and hollow-ware made from calcarious clay, temperature 2100 deg. F. uses approximately 500 lbs of coal per 1,000 brick.

An Illinois compartment kiln burning paving block from shale at 2100 deg. F. uses approximately 200 lbs. of coal per ton of ware.

A Tennessee 15 compartment kiln burning end cut building brick made from clay at 2,100 deg. F. uses about 400 lbs. of coal per 1,000 brick.

Several articles have appeared in the last couple of years criticising the American type of producer gas fired continuous kiln. In 1913, a paper was read by Geizsbeck before the American Ceramic Society. He starts his paper with the following statement: "It cannot be said in favor of the American producer gas fired continuous kilns, that they have been a great success so far." This statement needs no discussion. The many users of the American producer gas fired continuous kiln are a rebuttal themselves. Two plants alone have installed three each, one kiln rapidly following the other. Two have duplicated single installations. One of the largest plants on the continent installed three at one time.

He further states: "They (referring to the American system) as designed principally to use waste gases from the burning chambers to heat up the next chambers ahead of the fire and do not make any provision to regenerate or recuperate the air to be mixed with the producer gas." We emphatically disagree with him. What more ideal system could be obtained for the preheating of the air of combustion than to draw it through the cooling chambers, heat the air to within a few hundred degrees of the temperature of the burning chamber and at the same time cool the chambers in uniform regularity.

Along a little further he says: "If there is a little draft in the first chamber behind the fire, there can be only very little movement of the air and consequently only very little air can be available for the combustion of the gases in the burning chamber. We find, therefore, a lack of proper combustion." This is the first time that we have ever heard these charges made. You who have had experience with the producer gas fired kiln—have you not noticed the flame leap from the bag walls and lick the crown with only 2" draft at the fan? If there wasn't sufficient air for combustion, the condition of the burning chamber would be reducing instead of oxidizing. If such were the case, how do you account for the ability to put the gas in two consecutive chambers at the same time without the addition of any outside air whatever? Even then the chamber farthest from the air supply burns oxidizing. How could the temperature of a burning chamber be raised from 1350 to 1750 deg. F. in 25 hours, at the same time finishing the chamber, if there were lack of air of combustion?

He further criticizes the admission of the gas from the top instead of through bottom flues as is the German practice. The average chamber of the American kiln is from 15 to 60 ft. longer than those of Continental kilns. How will the underground distribution be made in long chambers? Can this method be adapted to American manufacture? Will it be successful? We, ourselves, are skeptical and cannot see our way clear to advise any prospective purchaser of a large compartment producer gas fired kiln to risk so large an investment on an expeiment.

He further states: "The principle as practiced in this

A Tunnel Type Producer Gas Fired Continuous Kiln in Georgia.

country (America) to design and build a continuous kiln which will answer for all purposes and all kinds of clay products, for all local conditions and all different classes of fuel is not approved in foreign countries." Neither is it here. It is a fact that in the early development of the kiln this was too often prevalent, but today no producer gas fired continuous kiln has been, to our knowledge, installed without an investigation of local conditions, the material, fuel, etc. Mistakes have been made. Are now made and always will be made, but they are getting fewer each year. The material to be burned determines the width of the chamber, the height of the crown, the length of the chamber and the number of chambers, the number of producers, the kind of producers, etc. The topography of the ground and local conditions determines the type of the kiln; whether its flues should be overhead or underground. All of this where possible, is carefully looked into.

The fuel is considered. Will it work in the regular producer? What grate area is required? How many producers will be needed? (An extra one always being furnished.) The older kilns were installed with one fan. Now a reserve one is always furnished, and in some cases three have been supplied.

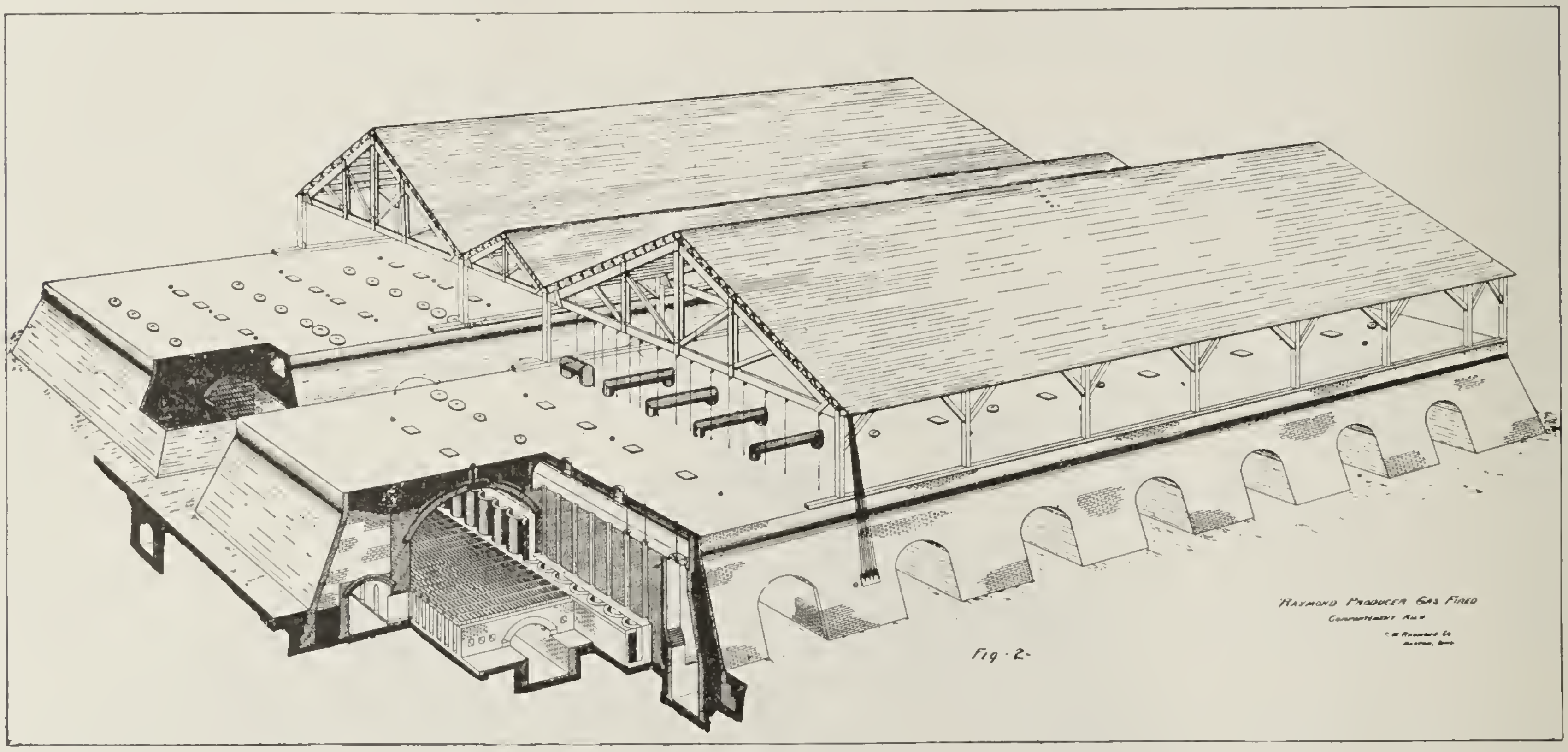
There are many points of superiority in this type of kiln, but space will not permit full discussion, yet one point that might be dwelt upon is "Regularity in operation."

"In daily burning, owing to each chamber of ware passing approximately through the same stages of heating up and cooling as every former chamber, it is easy, with records of the former chambers, to burn any chamber to approximately the same temperature, settle, condition, etc. The slow heating up and cooling is a boon to tender clays and one Arkansas company advises that their saving in checking alone since the installation of a gas fired continuous kiln pays for all the fuel used in the kiln. As the facts show, the kiln is especially adapted to paving block burning, where slow cooling allows the brick to properly anneal.

Don't think for one instance that we advocate the installation of a gas fired kiln under all conditions of clay ware burning, neither will one kind of installation answer all purposes. The material and market conditions must first be studied, and if the gas kiln fits the conditions readily, it is then to be determined whether the kiln will be of a compartment or the tunnel type and what changes from the standard are necessary to meet local conditions. For instance, many building brick can be burned in a chamber having 12 ft. crown—this height would be foolish for fire brick burning, 9 or 10 ft. being the extreme limit.

Why does the average coal fired continuous kiln scum with a high sulphur coal? Because the sulphur gas from the coal unites with the water vapor in the water-smoking chamber, forming sulphurous and sulphuric acids, which acids attack any salts present in the clay, forming sulphates. Compared with this, the producer gas fired continuous kiln, water-smokes its chambers or sections just set by means of hot pure air from the cooling chambers. The combustion gases are not allowed to enter the chamber until practically all the water is driven out of the ware, thus precluding all danger of the formation of any acid. And do you know that the gas fired kiln is the only type of continuous kiln sold which has this water-smoking arrangement as a standard part of construction?

You may wonder what happens to the fans with a high sulphur coal. I have seen a steel blade fan eaten out in a month and there are two ways of getting around this trouble, one by the use of copper vaned and lead coated fans, or by pulling the water-smoke off through one fan and the combustion gases through another.



The Raymond Producer Gas Fired Continuous Kiln Compartment Type.

Read "Brick and Clay Record's" Pink Section — Pages 1083 to 1094

The advertisements are not "ads." in the accepted sense of the word, but practical, paid for demonstrations of the abiding faith that clayworkers have in each other and in the principle of reciprocity.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

The Utilization of the Combustion Gases from a Continuous Kiln.

The combustion gases from a continuous kiln can be utilized in two ways, viz., for drying the brick and for water-smoking, according to a writer in "Tonindustrie-Zeitung. There is also another source of waste heat represented by the cooling chambers. In the operation of some continuous kilns, the gases enter the stack at 400-500 degrees C., and it is not any wonder in such cases that there is complaint of high consumption of fuel. But by a proper utilization of this heat going up the stack, the fuel problem assumes a more favorable aspect. The gases leaving the chimney (and these should consist principally of water vapor) should have a temperature of not higher than 120-150 degrees C., which means that we have at our disposal gas at about 300 degrees C., which is available for preheating the freshly set ware to a temperature of at least 200 degrees C. It requires but few calculations to show that considerably less fuel is required to heat these brick to redness than is the case where the ware is at the temperature of the outside practically. Recognition of the fact must not be lost, however, that if we introduce the gas into the stack at a low temperature a greater height is required to furnish the necessary draft, than if the gases were allowed to enter at a higher temperature. The height of the stack should equal one-third of the length of the burning canal—or if the canal is 300 ft. long, our stack should have a height of 100 ft.

It must be kept in mind that if the clay in question contains soluble salts, scumming will be apt to be encountered, if the combustion gases are utilized for drying. In such a case, the soluble salts can be precipitated by the use of barium chloride.—C. S. Kinnison.

Life of Cupola Linings.*

The following record of a cupola lining will be of interest to foundrymen, as an instance of the length of life attainable when the bricks are given proper treatment.

It is well known that even with the best qualities of fire-bricks for cupola linings, that is the highest refractory qualities combined with a fine grained structure to resist abrasion as well as chemical action through contact with the ash of the fuel, poor results are obtained when the bricks are laid with inferior clays for a mortar. The more readily fusible clays thus introduced between the best of bricks will start a slagging action within the range of the melting zone, and the result is a more or less rapid washing away of the lining. If, coupled to this, the daubing is also prepared with clays high in fluxing ingredients such as lime, oxide of iron, alkalies, etc. —and how many of our smaller foundries make use of local clay banks for this work—the result will be a necessary relining of the melting zone at very frequent intervals.

In the case presented herewith, the fire-bricks were laid without any clay mortar whatever. They were placed to within ¾ in. of the shell, and the space thus left filled with parting sand. Care was taken to have the joints as small as could be made. Charging the cupola was carried on with the ordinary care that should be given this work. The blast pressure ran from 12 to 15 oz., the melting rate was from 14½ to 16 tons per hr., the cupola diameter inside the lining 66 in., and the melting ratio from 8.1 to 8.4 lb. iron per lb. of coke. From the above figures it will be seen that full returns were expected from the cupola, and the lining was not "nursed" by any means.

The lining was put in June 2, 1912, and no new bricks were put in until the cupola was again relined October 19, 1913, it being deemed inadvisable to take any chances. After the lining was out, however, it was seen that the cupola could have been run for another 100 heats safely.

As the castings to be made are all of the lightest character, consisting entirely of stove plate and hollow-ware, very hot iron is required. This condition is accentuated by the fact that after tapping into bull-ladles holding about a ton each, the metal is carried to the different sections of the molding room, poured into hand ladles, and then into the molds. While the foreman gives some attention to the cupola daily, yet all the work about it is done by a set of green negroes.

The melting record of the lining is as follows:

1912.	No. of days.	Lbs. of iron melted per month.
June	24	1,387,500
July	26	1,437,000
August	27	1,569,000
September	25	1,555,500
October	27	1,665,500
November	26	1,494,000
December	25	1,402,000
1913.		
January	27	1,555,500
February	24	1,410,000
March	26	1,580,000
April	26	1,605,000
May	27	1,579,000
June	25	1,493,000
July	26	1,572,000
August	26	1,618,000
September	26	1,630,000
October	16	998,500
Total	429	25,551,500

Total melt, 12,775.75 tons.
Average melt per day, 29.8 tons.

From the above it will be seen that where foundrymen have to reline the melting zone frequently, not to speak of the rest of the cupola lining, a little attention to the work in the first place, the exclusion of materials allowing fluxing action between the bricks themselves, careful chipping to remove slag that will continue to eat in further with every melt, and at the same time allow any daubing put on to slip off the moment the slag behind becomes soft—will result in maintaining the integrity of the lining for a surprising tonnage and length of time.

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*Contributed to the Proceedings of the American Foundrymen's Association by W. A. Griswold, Nashville, Tenn.

New Pottery Glaze.

Recent reports tell of a new method for glazing clay pottery ware that has been patented by a German inventor residing in England which is claimed not to require heat to produce the glaze. According to this report, the articles are dipped or submerged in a mixture and after being submerged in it for a certain length of time they are taken out to dry and the glazing is done. The substance or mixture used for glazing is said to be made by mixing thoroughly three parts of glowing magnesium oxide of a specific gravity of 3.0 with four parts of saturated cold watery solution of magnesium chloride. To this mixture is added a solution of shellac mastic or sandrac gum in alcohol in proportion of 25 to 100.—E. J. Brown.

Terra-Cotta Lasts 1,000 Years.

Architectural terra-cotta, which plays so important a part in the construction of office buildings, tall loft buildings, apartments and other structures that are classed as fireproof, is, in all probability, the most time-defying material that enters into these buildings. Terra-cotta used nearly a thousand years ago, has been found to be in as good condition when brought to light, as it was when it left the primitive kiln. W. H. Martin, who represented the United States Government in Calcutta, in 1907, is authority for this statement, which he bases on the discovery at Petleik, a series of terra-cotta reliefs, with inscriptions dating back to the eleventh century, A. D.

Drainage Bricks for Damp Buildings

THE use of "bleeders" for letting water from embankments drip through a retaining wall, instead of allowing it to permeate the mass of masonry, is as old as sensible construction; but to employ drains or "bleeders" to dry out walls that are already wet, to prevent them from getting damp, is comparatively new, and the method employed bears about the same relation to the through-going "bleeder" as a drain-pipe to a sewer.

Walls are usually damp from one of four causes, namely:

(1) Too liberal use of water in the mortar, or from undue exposure to rain during construction.

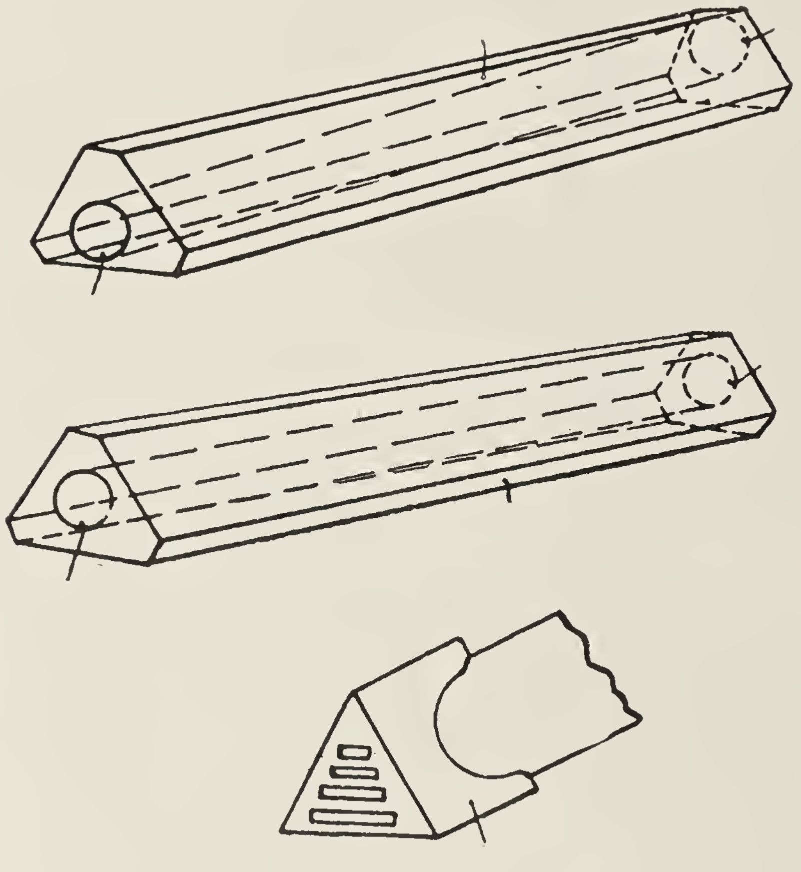


Fig. 1.

(2) Capillary moisture drawn up from the wet ground or from a body of water touching the wall.

(3) Condensation of steam from within, or of the natural moisture of the air, when the wall is colder than the air.

(4) Soaking, as from heavy rains on the weather side, overflows, etc.

Be the source of the moisture what it may, it is desirable to prevent or cure, as the case may be and one method proposed by Knape of Brussels is to build in originally, or to insert afterwards, tubular porous bricks which shall act as drains. When they are built in originally, they should be inclined upwards from the face of the wall, and the bore should be parallel to the brick (Fig. 2); if, however, they are inserted after building, it is better that they should be horizontal, and that the bore, instead of being axial, should incline upwards and inwards. Where desirable, the outer ends may be capped, as seen in the lower sketch of Fig. 1.

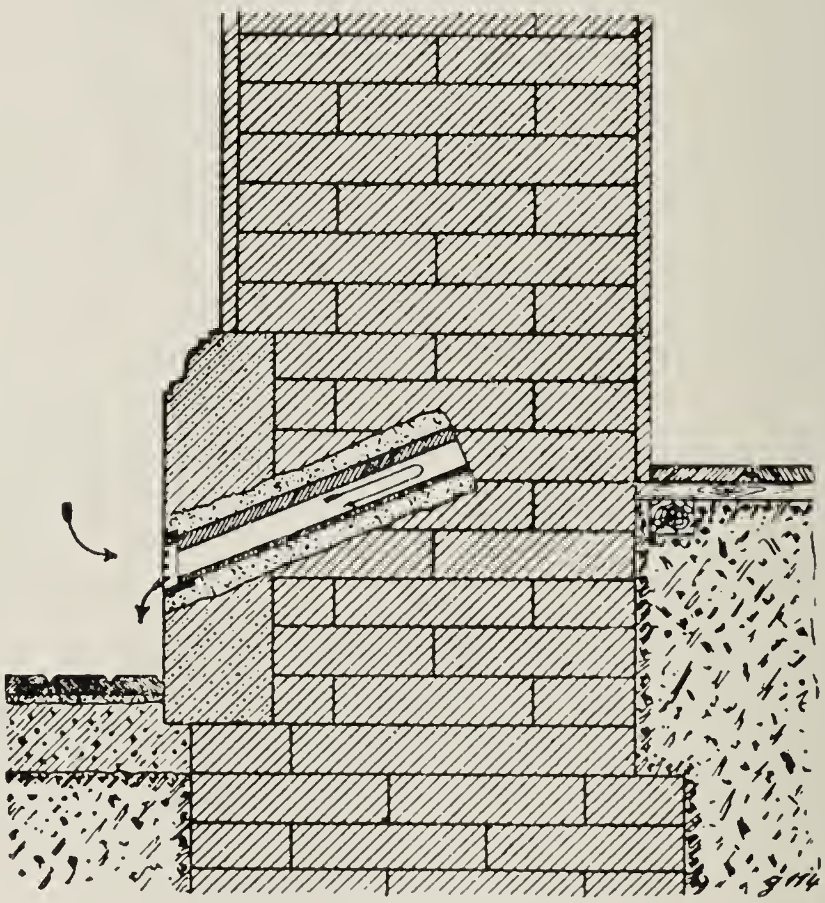


Fig. 2.

Sells 15,000,000 Sand Lime Brick.

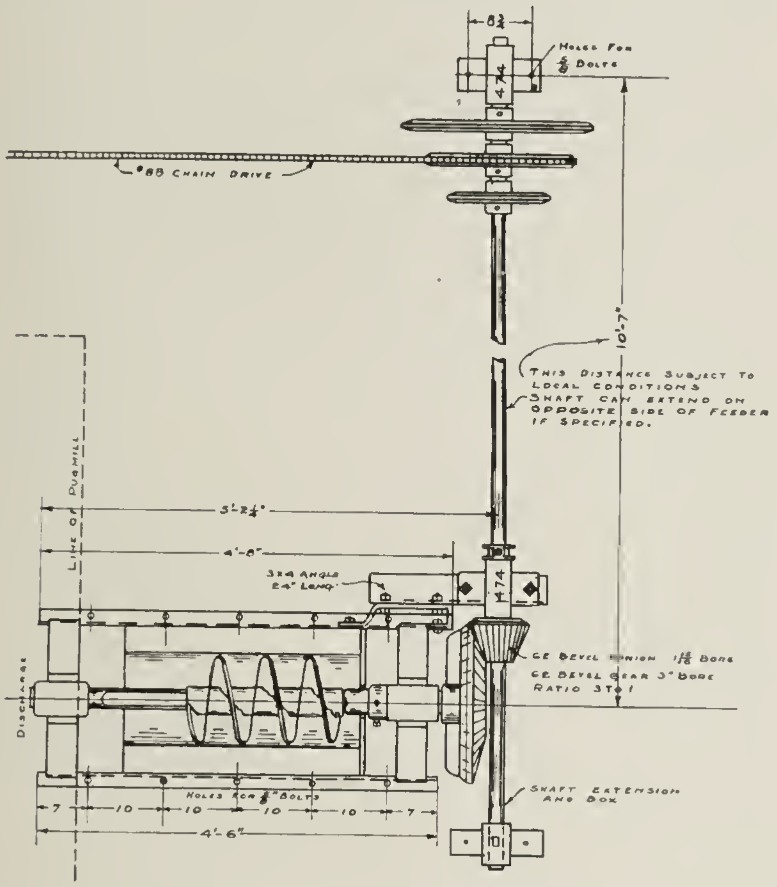
As the result of a sale which includes the entire output of its factory for four years, the Rochester (N. Y.) Composite Brick Company will close its retail office and the manager, W. M. Burchfield, devote his entire attention to the manufacturing end of the business. This sale has been made to the American Clay & Cement Corporation of Rochester, N. Y., and aggregates a total of fifteen million sand lime brick.

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

A special prize of $5 is offered in each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?

This Idea Wins First Prize



An Automatic Pug Mill Feeder.

There is a clay feeder on the market so arranged and constructed as to be driven automatically from the pug mill. Most feeders of this type are quite troublesome on account of the heavy construction and the extra heavy shaft that is used. The readily replaced cast iron parts which make the screw minimize this to some extent, but instead of the cone pulley, driven from a line shaft, I use bevel gears to drive a small countershaft which is given a proper support by two or three common box-bearings (see illustration) and on which are placed three or four sprocket wheels of different sizes for the purpose of regulating the speed of the screw or feeder, as the condition of the clay varies. These sprocket wheels can be held in position with a set screw, but a small key, held in place with a collar, is better. We have in use a No 88 detachable link chain for this drive which means no slippage, and this is driven from a ten-tooth split sprocket placed alongside of the main driving pulley on the pug mill, so that the feeder only operates when the pugmill is in operation. If it is desired to run the mill and not the feeder, release the key holding the sprocket and allow it to run free on the shaft. The feeder should properly form the bottom of the bin, the capacity of which should be amply large, and set at right angles with the pug mill, extending over the side of the mill at least six inches, pitched slightly toward the mill. In our plant, the pug mill is above the brick machine and cutting table, and we have it so arranged by means of a long clutch lever, that the clutch can be thrown in and out by the machine man. By means of a globe valve, the flow of water is set, and with a second valve, a gate valve, which can be connected to the clutch lever, the machine man can operate the pug mill, start the flow of clay and the water at the same time. This works very satisfactorily. The advantages are readily seen. It practically saves the labor of a man as the trucker can give it all the attention it requires, and get a steady flow of clay to the pug mill with the proper amount of water, insuring a better column, as it comes more uniformly in speed and quality from the brick machine.—N. Miller, manager Colonial Pressed Brick Company, Mogadore, Ohio.

Transmission Troubles.

Nearly every large manufacturing establishment has its department of power and plant, the portion of work including not only the care of the equipment and the generation of power, but also having in charge the general operation of the works, and thus dealing with the transmission of the power to every nook and corner of the place. With the general replacement of manual operations by power-operated machinery, it will be realized that the successful conduct of a manufacturing establishment depends almost wholly upon the maintenance of the motive power. Not only must the "wheels go 'round," but they must be kept uniformly and continuously in motion. Any interruption blocks everything, causing certain delay; while in some departments of work, notably in the manufacture of iron or steel, the stoppage of the machinery for even a few minutes may cause metal to chill, material to be spoiled, and large expense to be involved. In some departments of manufacture it is essential that the variations from the normal speed of the machinery is fatal to satisfactory work, this being the case especially in the textile manufactories; in other lines of work the transmission appliances are subjected to heavy and irregular shocks, and must be able to meet and sustain such stresses without failure. In addition to such daily requirements as are indicated above, it is essential that the transmission system of an establishment shall be convenient so far as changes and extensions are concerned; it is often desirable to install new machinery at short notice, and the power must be brought to such points of extension without serious derangement to the existing plant, and without requiring undue time. If repairs are necessary—a matter certain to arise sooner or later—the system should be so designed that the necessary work may be done with a maximum of speed and a minimum of expense. In the vital question of maintenance the arrangement of the transmission may play a most important part in the shop economy. Formerly it was understood that from 40 to 50 per cent of the power generated by the engines and boilers was expended in getting the effort to the machinery which did the work, and a transmission using not more than 35 per cent was considered very efficient. This is a matter which must necessarily be governed by local conditions; but in any case the efficiency of a transmission system depends very largely upon the manner in which it is installed, the methods of lubrication employed, and the extent to which proper alignment is maintained. There are certain transmission troubles which can be avoided only by the exercise of continual vigilance on the part of the engineer by whom it is operated; but there are many difficulties which may be altogether eliminated by the use of the most modern appliances, installed by engineers who have a fund of broad experience for their guide. Mistakes will occur in the very best plans, but there is no excuse for the repetition of the same mistake. The man who has "been there before" has a vast advantage over the man of limited experience, and there is no department of work in which practical experience is of greater value than in the design and planning of a system for the transmission of power. Future requirements may often have a controlling influence upon present work; the question of repairs, the provision for uninterrupted maintenance, the subject of lubrication—these are a number of divisions of the large question of power transmission which all go to make up a whole concerning which the broadest experience is essential for success. The fundamental point is to have the work done right in the first place, and then most of the troubles will be eliminated.—C. R. T.

How to Start the Working of a Clay Pit

THE correct working of a clay pit may make all the difference between the success and failure of the plant in course of time. At first, while all goes with fair smoothness, it may not appear to matter very much how the pit is worked, so long as plenty of clay is forthcoming, but in the course of a few years the difference in the cost of working has sometimes made a great difference to a clay worker. It is, therefore, of great importance that the whole lay out of the pit should be carefully considered, and that sufficient pains should be taken to do this thoroughly. It may seem a waste of money to make boreholes in the ground which is afterwards to be dug for clay—especially when it is known that plenty of clay exists, but numerous instances have convinced the writer that serious expense might have been avoided if only the borings had been made in the first place.

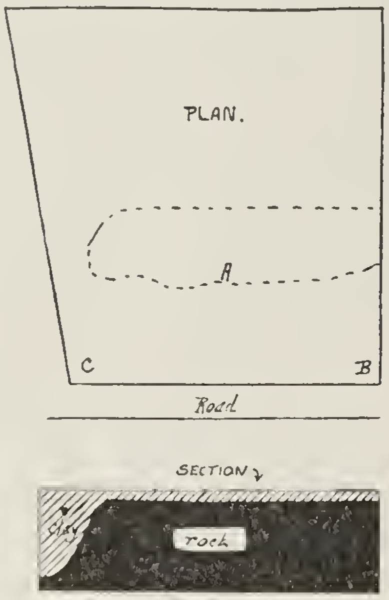


Fig. 1.

An instance of this is shown in Fig. 1, which represents the plan of a field before it was made into a brick yard, this plan being based on the information which a few borings could have supplied. The existence of the huge mass of rock (A) was not suspected by the owner of the land, but it necessitated taking the cars of clay a long way round, and put an additional cost on each loaded car. If borings had been made to show the existence of this rock, it would have been easy to have put the machinery at C instead of at B, which is where it is at present situated. The fact that the rock was under a covering of about six feet of clay was, in the absence of a proper investigation, the cause of the trouble.

In the case of a shale, the work may be greatly facilitated, or it may be increased by the direction in which the material is worked. It is a general rule that the face should be paralled to the angle of safety of the material, and that the direction should be the same as that of the strike. The total depth to which the clay or shale must be quarried depends on a variety of factors, of which the following are the chief: The gradient from the foot of the proposed face to the machine house, the depth at which the pit would become waterlogged, the angle of safety of the unquarried material, the necessity, or otherwise, of mixing various strata, and the method of quarrying used. Some men would get far better results if they were to quarry rather deeper, so as to use some of the low-lying rock to reduce the plasticity of the clay; others go too far down, and use a material which it would be better to leave out of the bricks. These are matters that can only be decided by careful examination—possibly by an expert.

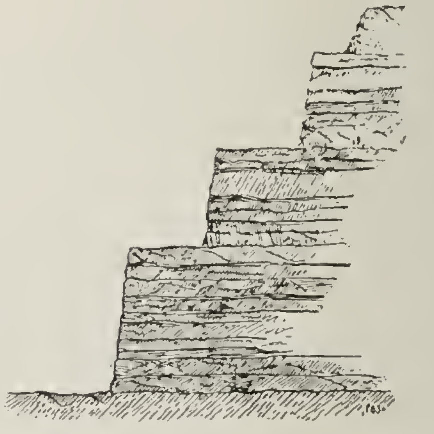


Fig. 2.

The occurrence of a single material only in a clay face is not usual, but is by no means so common as it would be convenient. Where several materials occur in layers and can be mixed together in definite proportion it is usually best to work the face in a series of terraces, as in Fig. 2. In this case it is very important that the slope of each terrace should not be beyond the angle of safety of the men engaged in getting the clay, who may be injured by its slipping. The height of each step must be regulated by the nature of the material, but terraces which are too high are clearly dangerous, unless the face is made to slope a considerable distance. Where a large number of men are employed at a time, the terrace method is sometimes used, but unless the material is peculiar a large output is best obtained with a steam navvy rather than by a large number of men.

Blasting may be used with shales and hard clays, and if carefully carried out, it enables large masses of material to be loosened at a cheap rate. Exposure to the weather for a few days will usually break up the lossened mass still further.

Undercutting is sometimes practiced for the same purpose, but is very dangerous, and should be avoided. It is a frequent source of accident. Under boring is less risky, and is a convenient means of introducing the explosive at a point where its action will be highly effective. If several charges of explosive can be fired at the same time by means of electric ignition, their united force will be more effective than if each were to be exploded separately.

The planning of the work in a clay pit of shale quarry requires a man of much foresight and skill; failing these the works are likely to be hampered by conditions which might have been avoided, had the necessary precautions been taken.—Brick and Pottery Journal.

The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record," Chicago.

Scum Once More.

We have been holding, for some time, a letter that comes from Professor Charles F. Binns. That is all the introduction necessary to insure its careful perusal.

It seems to be necessary to state the facts with regard to the causes of scum even more simply and clearly than has already been done. In spite of the offer of the present writer to answer specific questions none have been asked, but instead two opinions have been expressed to the effect that the contention of the first paper is erroneous. In the latest of these an amusing distinction is drawn between "practical men" and "writers." Presumably the last named are not practical, but it must be made clear that the so-called "writers" do not make statements which are unsupported by evidence. In the last analysis there is only one direct cause of the most usual forms of scum. There are some forms of scum which are not well understood, but they are of such rare occurrence that they do not constitute a problem and never cause serious loss. The usual scum which troubles the brickmaker so generally is always caused by soluble salts. Mr. Boss admits that "there is a chemical substance in all clays" which may cause trouble. He is mistaken in using the word "all." While soluble salts are very widely distributed, they do not occur in *all* clays. Very often they are in the water, but even *all* waters do not contain them. What is meant by the words "chemical substance"? Clays are chemical substances. Probably *foreign* substance was intended. This substance is generally the sulphate of lime. Other substances have a share in the trouble, but it is a small one. For most practical purposes it is sufficient to state that sulphate of lime is the offender. This is not an opinion. It is a well established fact and does not admit of debate. This substance is harmful, not because it is a sulphate, but because it is soluble in water and so slightly soluble that it is very easily deposited as the water evaporates. Whether this sulphate occurs in the clay or the water is a secondary matter because in whichever place it is it rises to the surface of the clay in company with the out-going water and on the final departure of the water it is left behind on the surface of the brick.

As to the cause of the sulphate, whether it is naturally present in the clay or water or is formed there is a more open question. Sometimes it is the one, sometimes the other.

The possible conditions are these:

1. The clay contains gypsum, sulphate of lime.
2. The clay contains pyrite, sulphide of iron and carbonate of lime. These when found side by side in moist clay form sulphate of lime.
3. The water contains sulphate of lime.
4. The clay contains carbonate of lime and the fuel contains sulphur.
5. The water contains lime in some other form than the sulphate; such as the bicarbonate or the hydroxide, and the clay contains carbonate of lime.

Cases 1, 2 and 3 are by far the most common and either of them results in a formation of scum *in the dryer*. No amount of care in drying or burning will cure or stop the formation of this scum, though it may be increased or diminished by bad or good drying. The brickmaker who is troubled with scum may decide the case for or against this cause of scum beyond the possibility of error. Let him take a dozen brick from different cars as they leave the dryer. Scrape one-half the surface of each brick to remove the outer skin to the depth of one-eighth of an inch, then burn these dozen brick in the usual way. If the scraped surface is red while the unscraped surface is scummed, the point is proved. The scum occurred in the dryer. This is not merely an opinion, the present writer has done it hundreds of times.

If the scraped surface is scummed as well as the unscraped, the cause is to be looked for under 4. Here it is that the acid dew gets to work about which both Mr. Boss and Mr. Butler have written. They have not, however, stated the case correctly. Mr. Boss' constant references to "boiling point" have no significance. The temperature of the dryer at the entrance of the brick is considerably below the boiling point of water and that at the exit is considerably above it, and water smoking in the kiln cannot be done unless the temperature is above the boiling point of water. Probably Mr. Boss does not need to be reminded that there is no such thing as the boiling point of a vapor. What this correspondent is thinking about, and Mr. Butler seems to have the same idea, is the condensing of an acid dew upon a brick. If the brick contains lime this will result in the formation of the sulphate of lime as aforesaid, but the whitewash itself is not in the vapor. It is only when the vapor meets a surface where the lime is and condenses upon it that scum is found. The same is true of Mr. Butler's statement that scum is "condensed water smoke," water smoke, or the vapor occurring in the kiln during the water smoking period consists of water vapor, which is harmless, and smoke or soot, which is burned off when the kiln begins to glow. Mr. Butler certainly knows that wood as a water smoking fuel does not produce scum, but this is because wood does not contain sulphur. If a coal can be found which does not contain sulphur, that coal will not produce scum. It is not "the gases of combustion which condense" that cause scum. These gases are carbon dioxide, commonly called carbonic acid, carbon monoxide, and hydrogen with oxygen and nitrogen from the air. This has been proved by thousands of analyses. It is true that sulphur compounds nearly always are present, but these are not strictly gases of combustion but impurities arising from impurities in the fuel. It is these sulphur compounds alone which are responsible and then only when they find lime in the clay.

Case 5 is not so easily explained and will not now be dealt with. Suffice it to say that this condition does not account for one per cent of the general scum trouble.

Now, as to the remedy. If it is shown that the trouble arises in the dryer, as already explained, that is, in cases 1, 2 and 3, the use of barium carbonate is an infallible cure. The effect of it is very simple. It does not destroy the sulphur, but it renders it insoluble and, therefore, harmless. This remedy is in use in hundreds of plants, brick, terra cotta, sewer pipe, etc., and it always gives satisfaction. Perhaps the difference of opinion has arisen because someone has used barium chloride. This is cheaper and a smaller quantity will suffice, but it is in itself soluble and the least excess will produce a scum of another kind.

In the laboratory of the writer the faucet water contains sulphate of lime, and in testing the numer-

> ous clays which come to hand it is the practice to use barium carbonate in making up brick in the machines. The result is invariable as to the prevention of scum. Of course, in testing the properties of the clay itself, distilled water is used, but this cannot well be done on a commercial scale.
>
> Now, in considering a cure for Case 4, the same remedy serves, but a larger quantity of barium carbonate must be used because it is necessary to have enough to take care of the sulphuric acid being deposited on the brick. A trap must be set which is large enough and sufficiently distributed to catch every part of the acid. If this is not done, the lime will be attacked and the scum produced. If barium carbonate is judiciously used, no variation in the dryer, sluggist draft, or what not, will cause a scum to appear. It is surely best, then, to employ such an efficient and simple remedy.
>
> The "writers" who are so freely criticised have nothing to gain by thus stating the facts. They are not interested in the sale of the remedy, nor do they stand to lose or gain by the manufacture of bad or good brick. They wish to offer to those who need it the benefit of the careful studies that have been made. If the remedy is refused—so much the worse for the unbeliever.
>
> One more word. The Editor says, "Those who differ with Professor Binns in his remedy." The remedy is not *his* and he makes no claim to it. It is as old as Seger and has been proved and advocated by Orton, Lovejoy, and many others. A word to the wise is sufficient.

The Editor, in this case, extends his sincere thanks to Professor Binns and, while disclaiming any thought of placing the burden of the discovery, ownership or future of the remedy upon his (Prof. Binns') shoulders, feels that his (the Editor's) error was a natural one, since Binns has been looked to as an authority on efflorescence almost from the day that brickmakers first knew that it was detracting from the selling value of their product.

A Correction

We seem to have "slipped up" a little on the answer we gave a questioner in the March 7 issue. The Armstrong Cork Company, of Pittsburgh, Pa., writes:

> On page 591 of your issue of March 7th, you state that we use infusorial clay for making cork fire brick, which are a highly refractory article, and that these brick are especially suitable for arch work in furnaces. The Nonpareil Insulating Brick, to which you undoubtedly refer, are in no sense a refractory brick and are intended to be used only as an insulating medium. In order that there may be no misunderstanding on this score, we shall appreciate your kindness if you will make the necessary correction.

The Nonpareil Insulating Brick is composed of diatomaceous earth (kieselguhr), a small amount of clay and finely ground cork. In the process of manufacture, the cork is burned out, giving the material a peculiar porous texture. The brick measure 9x4x2½ inches and the average weight is 1½ pounds.

Still More About Scum

Ernest W. Knapp, of 211 Brand street, Elmira, New York, has sent the following, a letter upon the same subject as that treated by Professor Binns. Mr. Knapp asks that his letter be printed without alteration, addition or omission, and it has been done. With the heading "Whitewash," Mr. Knapp says:

> It seems highly fitting at just this time of year, when we sit by the fire and think highbrow thoughts and read the highbrow articles of the divers professors, that our attention should turn again to scumming. We have read it in chemical symbols, and in vivid description, and perhaps we might now appreciate a little light on just how to go at it on our plant next Spring.
>
> My experience has shown me, that while many articles will show a technical man the road, yet a great majority of clayworkers would appreciate a little program to follow step by step, that anyone with patience can follow through, and at least locate the cause of scumming, which is the next thing to curing it, depending only on the cost of same.
>
> *No 1.* The first thing to do is to convince yourself that you do not have the least idea as to its cause. *Jumping at conclusions* is the enigma generally misnamed whitewash.
>
> *No. 2.* Accept no suggestions or "I thinks" from anyone, or you will violate No. 1. (Better frame No. 1.)
>
> *No. 3.* Rig up or appropriate a steam jet blowing into the atmosphere. With a clean pail you catch, *not the water that runs from the pipe,* but the spray. Bottle it up and label it, distilled water.
>
> *No. 4.* Go to your clay pit, or shale bank, and get a sample of each different kind of material that enters the mixture of your clay. Keep them separate and label them with a letter or number. These samples constitute the initial point of manufacture and the first possible source of whitewash.
>
> *No. 5.* Pound up each piece separately, using a clean place and a clean tool, and put them in clean paper bags. Make two pieces of each sample, one with the distilled water and one with your regular pugging water. The pieces or bricklets should be approximately one inch by six inches by ten inches. Stroke the surface with a knife so as to give a fine, smooth face. A pane of glass makes a good palette to mix and make the bricklets on. Mark each piece with its sample number and whether distilled or pug water. Place in some dust-free room and retard the drying as much as possible (slow drying allows the soluble salts to reach the surface).
>
> *Caution.*—Do not use plaster paris molds and palettes or molds of any kind.
>
> Next, take a mixture of all the samples and make three bricklets—one with distilled water, one with pug water, and one with distilled water of which one-half the face is oiled with die or repress oil. Dry as before.
>
> When all the samples are thoroughly bone-dry, place all the pieces in your kiln near the bottom (in downdraft), face up. Put them where there is good circulation but no chance of flash from the flame. Watch this carefully and allow no sand or dirt to be sprinkled on them.
>
> (Scraping off the surface of a bone-dry bricklet to show whether the scum comes from water smoking or from the clay is *not* advised. It is not possible to obtain a smooth surface to serve as a comparison to the surface stroked while wet.)
>
> After the firing you can readily see whether the whitewash comes from your water or your clay, and if in the clay, from which sample or combination of all samples. Elimination of this source of material or addition of Barytes early correct the scum.
>
> *No. 6.* If no whitewash shows on any of the bricklets, even after repeated trials, send some freshly made bricklets through the dryer and burn as before, observing identical condition. This will show whether the acid fumes in your dryer furnish a possible source.
>
> *No. 7.* In case the bricklets in No. 5 all show whitewash, make up a fresh batch and water smoke your kiln and carry well into the oxidizing stage with a coke that contains little or no sulphur. Sulphurous fuel, in my experience, has been the stumbling block in the majority of whitewash problems. In the heavy steam and poor circulation of the average kiln during the water smoking period, the moist acid, derived from sulphurous fuel, combines readily with calcium or lime in the clay, to form whitewash on the lower courses of brick in the kiln. No addition of Barytes can prevent this and the various schemes for reducing the combination by coating the ware with bituminous matter and other reducing agents is not practically possible. It's a nice theory but there is no money in it.
>
> A trial kiln with coke costs but little, and by keeping data on the amount used and cost of same versus the regular fuel, one can readily determine whether it pays to get rid of this source of whitewash or not.
>
> Of course, a little common sense and judgment are required to exactly locate each source of scumming, but it does not require a chemical analysis or a black board demonstration of the reactions involved. This procedure would not show a possible source from a

limey clay, pugged with carbonated water or apply to some of the complicated causes sometimes encountered.

But such cases are rare and the employment of an expert offers the best solution.

When the source is located, or sources, as the case may be, and you have gone clear to the end of the procedure, it is time to take elimination steps. A great many writers place too much dependence on Barytes, when the real cure should be affected by other means. Many practical men, likewise, go to great lengths to disguise the scum when it would be cheaper to eliminate it.

The writer believes that Barium is adequate only in case the whitewash comes from the clay. As it is not very soluble, it must be added as a powder that will cling to the particles of clay. It is like a spider that waits for its prey with a web, but cannot easily roam around hunting for calcium. To gain results, put it in the dry pan (when percentage of tailings are low) and give it a chance to thoroughly mix with the clay. The proper quantity is, of course, determined by experimenting. So much for the clay.

Curing the water is a rather tough proposition, as it is costly. One factory sends all condensation of steam (distilled water), by a system of traps, to a tank over the pug mill, with the overflow going to the boilers. This gives pure water and also hot water at the pug mill.

A mixing tank, with barium chloride to precipitate the soluble salts, is another means, but is costly and requires constant attention.

Scumming oils at the die and repress can be replaced by guaranteed articles on the market.

Sulphurous fumes in a dryer must be eliminated at their source. Proper circulation must be obtained. Waste heat from kilns requires fires pulled and ash pits cleaned while hot. In radiation dryers investigate cracks in heat flues. Auxiliary air is often pulled in near the fires and often takes the sulphurous fumes from a heap of clinkers with it.

Watch your setting at the kilns and experiment with draft and time of water smoking. On rainy nights, observe how wet fuel affects the whitewash. Don't set a wet brick. The place to dry brick is in a dryer.

Why, considering the seeming simplicity of the remedies suggested, do brickmakers make scummed or whitewashed brick? Why do so large a proportion of the brick walls in every big city show the deadly (from an art standpoint) efflorescence?

Street Car Signs Point Way to Brick

There is no surer way of bringing the story of brick to the attention of the public than by street car advertising. One has but to examine his own thought to see the truth of this statement. What advertisement that you saw today—or yesterday—or last week, is most vivid in your recollection? Was it something you saw in the back pages of a national magazine, or on the cover of a weekly? Was it a great "spread" in the daily newspaper? Or was it "Spearmint" or "Uneeda" or Welch's Grape Juice, in a street car?

The men who sell street car advertising have a formidable array of statistics regarding the inconceivable number of people who patronize the line or lines that they are trying to interest you in. The figures are monstrous, until you think of the immense profits the street car companies make, often on watered stock, at a nickel a head.

It has been said that street car advertising is the next best thing to chaining a man down to a chair and giving him nothing to read but advertisements. The enforced mental idleness that comes with street car riding, the psychological placing of the signs at a point where the eye cannot miss them, and the fact that the signs have made friends for themselves in the past, by being cleverly designed and well printed, makes their reading imperative.

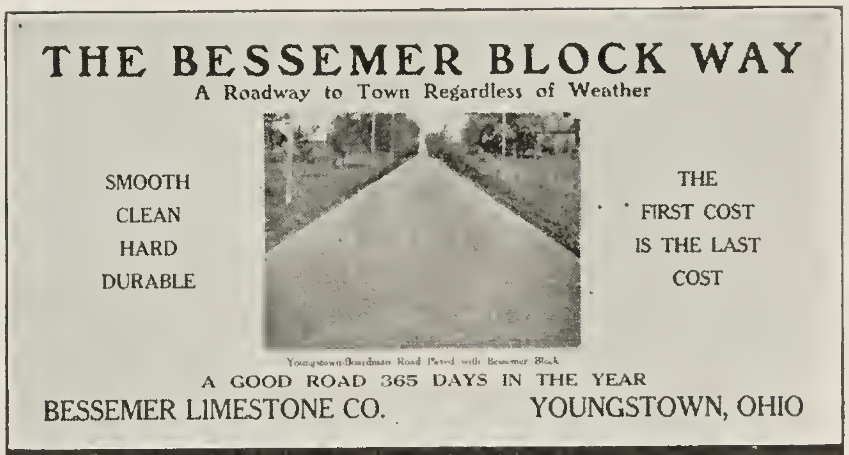
And this reading is the best of its kind, since it admits of thought concentration, undistracted by printed matter above or under the advertisement.

Suffice it to say that the men whose advertising campaigns run in five and six figures find that this kind of advertising pays. The brick manufacturer who places his ads. with theirs is, to say the least, in prosperous company.

The Bessemer Limestone Company of Youngstown, Ohio, has decided to join the ranks of these "big" adevrtisers, and, with good common sense, has prepared cards that are convincing and which will not waste the money the space costs. Other brickmakers will do well to follow this example.

San Francisco Demands Strict Paving Test.

The 18 per cent test for vitrified brick for paving Third and Sixth streets was approved by the Streets Committee of the Supervisors yesterday, after hearing from Assistant City Engineer Hunt, who said that a 20 per cent test would be strict enough, and from Street Repair Superintendent McCoy, who stated that he wanted the 18 per cent test because he wished to get the best brick obtainable for the new Third Street pavement. The committee recommended that the Board of Supervisors authorize the Works Board to call for bids for supplying 950,000 vitrified paving block, 500,000 to be furnished under guarantee within thirty days.



THE BESSEMER BLOCK WAY

A Roadway to Town Regardless of Weather

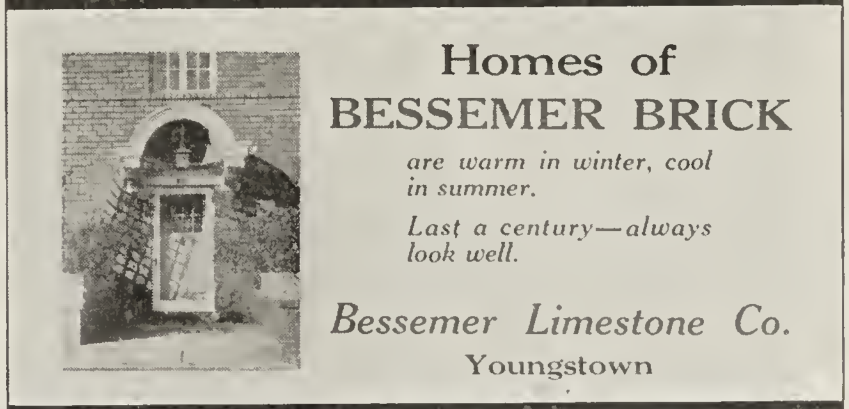
SMOOTH
CLEAN
HARD
DURABLE

THE
FIRST COST
IS THE LAST
COST

Youngstown-Boardman Road Paved with Bessemer Block

A GOOD ROAD 365 DAYS IN THE YEAR

BESSEMER LIMESTONE CO. YOUNGSTOWN, OHIO

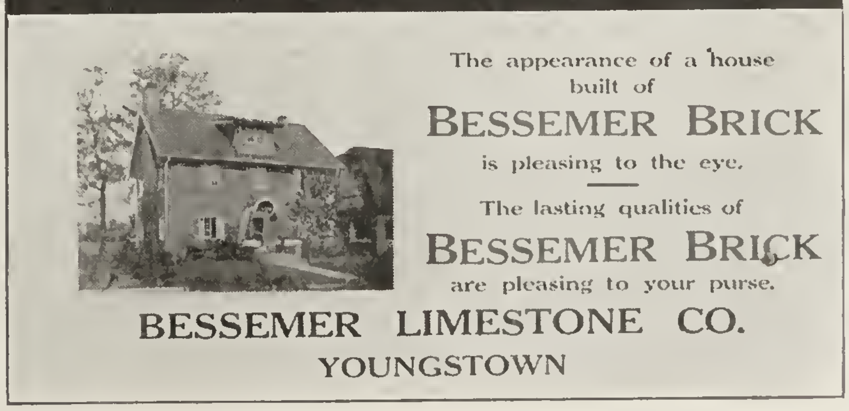


Homes of
BESSEMER BRICK

are warm in winter, cool in summer.

Last a century—always look well.

Bessemer Limestone Co.
Youngstown



The appearance of a house built of
BESSEMER BRICK
is pleasing to the eye.

The lasting qualities of
BESSEMER BRICK
are pleasing to your purse.

BESSEMER LIMESTONE CO.
YOUNGSTOWN

"They Never Fade"

Colors

Red, Brown, Buff, Purple, Black for
Cement, Mortar, Brick, Stone, Concrete, etc.
25 Years Exposure Proves Their Permanence
Ricketson Mineral Paint Works, Milwaukee, Wis.

ROBERT W. HUNT JNO. J. CONE JAS. C. HALLSTED D. W. McNAUGHER
ROBERT W. HUNT & CO., ENGINEERS
INSPECTION AND TESTS OF BRICK AND ALL CLAY PRODUCTS

CHICAGO 2200 Insurance Exchange Bldg.
NEW YORK 90 West Street
PITTSBURGH Monongahela Bank Bldg.
ST. LOUIS Syndicate Trust Bldg.
LONDON Norfolk House
MONTREAL 905 McGill Bldg.
TORONTO Traders Bank Bldg.
SAN FRANCISCO 251 Kearny St.
SEATTLE 309 White Bldg.
MEXICO CITY Cinco de Mayo 6 B

Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff Strongest and most durable
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U.S.A.
Correspondence solicited

Clearfield Brick Machinery
FOR HARD SERVICE
Literature on Request
Clearfield Machine Shops, Clearfield, Pa.

SAVING

with Frink Pyrometers starts within one week of the receipt of your order. No interruption to the progress of your work. Ask us HOW.

The Frink Pyrometer Co. Lancaster, Ohio

We Can Save You Money

On clay working machinery. Repair parts for "McKenzie" brick and tile machinery. Hollow block, Fireproofing and special dies. Write for catalogue.

Brazil Machine & Foundry Co., Brazil, Ind.
Successors to Adrian Brick & Tile Co., Adrian, Mich.

PULSOMETERS

Cost less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication.
Write today for our "Pulsometer Handbook." It shows many novel installations and contains valuable data on pumping problems.
PULSOMETER STEAM PUMP CO.. 13 Battery Place, New York, N. Y.
Chicago Office: 223-231 North Jefferson Street

"STAG" BRAND
Manganese Steel Castings
EDGAR ALLEN AMERICAN MANGANESE STEEL CO.
Chicago, Ill., New Castle, Del.

Questions

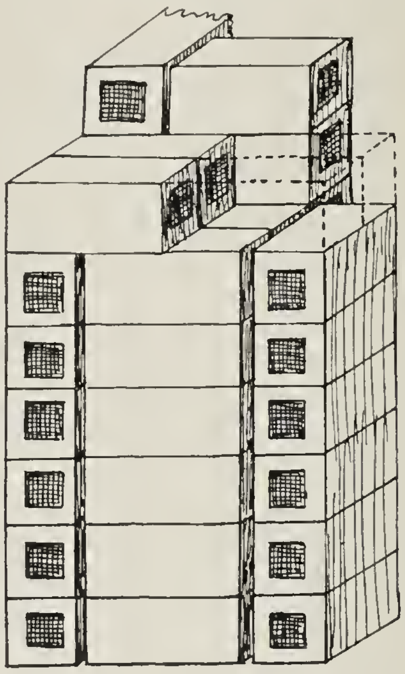
A Department in Which Workers in Clay May Ask for a Solution of Any Problem That Confronts Them in the Plant or Office

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

How to Set Hollow Brick.

376. *West Virginia—What is the best way to set hollow brick? Should they be set so as to break the flues that the openings would make?*

The accompanying drawing shows the best way to set hollow brick in a kiln. The flues, it will be seen, are broken by this method.



Ammeters to Regulate Pugmill.

377. *New York—We noticed a reference recently in "Brick and Clay Record" to the use of a small device—an ammeter, for regulating the mixed clay in a pugmill. Will you tell us where we can obtain one of these?*

See answer given 350, California, in this department.

Sliding Roof for Scove Kilns.

282. *Canada—We burn brick in common scove kilns, using a temporary roof. We are considering erecting a permanent kiln shed with a sliding roof—that is, a roof with movable sections on rollers, and which can easily be removed from one part of the shed to another, as required. Do you know of firm using such a roof from whom we could get a plan?*

H. K. Brundydge, manager of the Tallahassee Pressed Brick Company, of Havana, Fla., writes us that he saw the above question, which was printed on page 820 of the April 7 issue. He further states: "We are the inventors of these roofs and they are in general use in Florida, where we have 3 months of catchy weather during the hot months. There is no patent on these roofs and we will give your correspondent any information he may desire on the subject. Our

& Answers

Recognized Authorities in Every Line of Clayworking, Engineering, Economics and Technology Will Write the Answers

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

---

roof is 72 ft. long by 40 ft. wide and 4 niggers or a mule can roll it on or off from one kiln to another in 2 minutes.

"Roll it over the pattern you want to set. When you start the water smoke roll it off. This lets the steam out and off at once. Should a shower come up roll it on, as soon as the shower is over roll the roof off. There comes a time in every kiln when it is too hot to have a roof on and not hot enough to protect itself from a heavy dash; at such times a rolling roof will often save its cost in damaged brick."

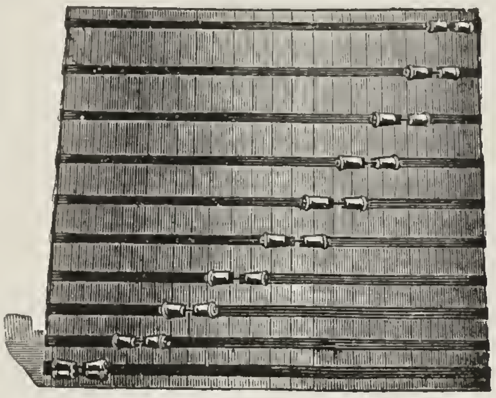
At the suggestion of Mr. Anton Vogt, of Racine, Wis., the question of a movable roof over a scove kiln was put up to Mr. Asa C. Ernest, of Chattanooga, Tenn., who had movable sheds of this kind on his plant at Macon, Ga. Mr. Ernest answered as follows: "The moving sheds at Macon have been torn away for several years. They were built in twelve-foot sections with posts cut even at top and with heavy stringers and a light rail on top. I used small iron wheels with a groove in them, staying the rafters with a ⅞-in. iron rod. I used galvanized iron for covering, and, while I got good results, only having three kilns running, I would advise a yard of any considerable capacity to depend upon a dryer and keep the setting close to the dryer. I do not think the rolling sheds would be practical on a yard of more than 25,000 daily capacity.

Soft Brick Weigh Lightest.

348. *Washington—We would like to have your opinion on a feature of our work which has developed in the last few weeks. Upon weighing our common brick we find that on an average the softer brick weigh from ¼ to ½ lb. less than the hard-burned. How do you account for this? Heretofore we have found that the harder the brick the lighter they were.*

We are inclined to believe that mere chance is responsible for the soft brick being of less weight than those burned harder. However, we can imagine cases where such would be true. For instance, if a clay contained considerable calcium carbonate, the softer burned ware would be heavier than the hard-burned because in the latter, the calcium carbonate has been decomposed; that is, in these brick you no longer have calcium carbonate, but quick-lime instead, which is, of course, lighter. The soft-burned brick would be heavier, therefore, provided they had not been subjected to a temperature high enough to break up the calcium carbonate (about 1,800° F.) It would be a rare case, however, if you are using a clay containing enough lime to make the brick ¼ to ½ lb. lighter. To account for the difference of ½ lb. in weight the clay would contain more than 16 per cent of calcium carbonate. We can offer no explanation, as to why at one time the harder burned ware appeared to be heavier.

Increased Efficiency *Greater Economy*
Results obtained from use of
"Fuller Quality"
Sprocket Wheels — Bearing Surfaces hardened — Specially treated to resist wear.
All kinds of wearing parts to resist abrasion.
Unequalled for severe duty and long life.
Write for more information.
Lehigh Car, Wheel and Axle Works
Catasauqua, Pennsylvania

"The Tanks with a Reputation"

The construction of
Caldwell Cypress Tank
is based upon scientific and conservative engineering principles that eliminate every point of weakness found in ordinary tanks.
The proven durability of the tank material, the scientific hooping and the expert construction, all combine to make the Caldwell Tank wear, last and give satisfaction. Get our illustrated catalogue before buying.
W. E. CALDWELL CO., (Incorporated), LOUISVILLE, KY.
Tanks {Steel-Wood / Galvanized} Towers
Wind Mills - Pumps - Gas Engines

OIL BURNERS
FOR
BRICK KILNS
THEY INSURE
EVEN {BURNS / COLORS}
LESS {OIL / TIME / COST}
ADJUSTABLE TIP
THOUSANDS in USE
WRITE TO
SCHURS OIL BURNER CO.
LOS ANGELES, CAL., U. S. A.

Absolute Control of Temperatures in all Kinds of Kilns and Furnaces
Heraeus Le Chatelier
PYROMETER
Recommended by the highest authorities
For measuring temperature between 0 and 1600 deg. Celsius, equal to 2920 deg. Fahrenheit. Successfully used in establishments for the manufacture of Brick, Pressed Brick, Terra Cotta, Pottery, Porcelain, Stoneware, Chamotte, Cement, Glass, Iron and Steel and other metals, particularly for Hardening and Annealing, also for Molten Metals, Cartridges and Ammunition, Chemicals, Gas Accumulators, and by Boiler Inspectors, Schools and Colleges.
Heraeus Patented Electrical Furnaces
For Laboratory and Experimental Use
Fused Silica Ware of Every Description at Moderate Prices
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of every description. This Heraeus Patented Fused Quartz Glass is not affected by any changes of temperature whatsoever, and the co-efficient of expansion is only 1-17 that of platinum. It is of the utmost importance for all purposes where the above qualities are essential. Write for information. Pamphlets and References on Application.
CHARLES ENGELHARD, Hudson Terminal Bldgs. 30 Cortlandt St., NEW YORK CITY

Triumph Steam Brick Dryer

With our new system, including our Automatic Dumping Machine, we are able to, and will guarantee to make 50,000 brick a day in one unit.

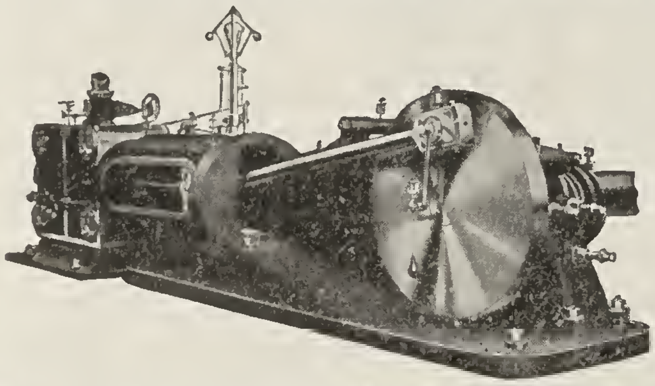
The C. O. Bartlett & Snow Company
Cleveland, O., U. S. A.

THE RICHARDSON-LOVEJOY ENGINEERING COMPANY
COLUMBUS, OHIO
CERAMIC ENGINEERS
FACTORY ARCHITECTS

Geological Examination of Properties
Clay Testing
Investigations of Manufacturing Propositions
Plants Designed, Construction Superintended and Operations Directed
Driers, Furnaces, Kilns
Remodeling Old Plants Given Special Attention
Development of New Lines of Products

Pamphlet, "Ceramic Engineering." Free

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

We Reline Press Boxes

We reline any make and for any shape brick. No job is too exacting for us — none too small or too large

We make Kiln Bands, Kiln Band Lugs, and Grey Iron Castings for Grinding Pans. Special Foundry Orders are a Specialty. Submit sketch or specifications.

Repairs for
Brick Machinery and Dryers

We solicit inquiries from discriminating buyers. What are your requirements?

Bolivar Foundry and Machine Company
BOLIVAR, PA.

To Secure Full Color Ranges.

343. *Mississippi—Will you kindly inform me as to the materials or chemicals that are used in connection with the burning of brick under reducing conditions, to secure full variegated color effects, now so popular?*

The so-called "pea-cocks" and other variegated colors now so popular in burned brick are obtained simply by virtue of reducing conditions. The colors obtained vary with the intensity of the reduction and the period of time during which these conditions are maintained. There are various means used for intensifying the reducing conditions, the most effective and probably the most common one being ordinary tar. Toward the end of the burn the liquid tar is introduced into the kiln through openings in the crown. Only a relatively small amount is used and it is introduced slowly by dripping from a suitable vessel. This operation is continued for about an hour or so or until the tar has been completely broken up and the kiln is filled with strongly reducing gases. It is essentially that these conditions be maintained only a rather short period of time if the variegated color effects are desired. When the conditions are reducing for only a brief period it is evident that only the edges and exposed faces of the bick will be affected, producing variegated colors in the brick. If, however, the kiln atmosphere is held reducing for a considerable length of time, the entire surface of the brick will experience reduction by virtue of the increase in time and there is a tendency for the brick to assume a more or less uniform color which is undesirable in this particular case.

At the present time the production of the beautiful "peacock" colors seems not to be under control and very few are obtained from a kiln. It would seem very possible, however, that if some simple systematic researches were carried on, it would be found that the development of this color could be brought under a much closer control than now exists.

Some of the crude oil by-products can be used for this purpose also. Their action is somewhat different from that of the tar, the resulting colors being somewhat less intense than when the latter is used. In using either material the kiln is kept tightly closed and the same care taken to maintain reducing conditions by the manipulation of the fires as would be the case under ordinary reducing conditions.

It should be stated that, by a proper handling of the fires, the same color effects can be obtained merely by the use of coal alone, no tar or other similar material being used. It is simply a question of attaining extremely reducing conditions.

Wants Address of Minnesota Brickmaker.

349. *Minnesota—I am having some trouble in drying my brick. I employ a waste heat dryer, taking the heat from the kiln with a 14-foot fan and use a 6-foot fan on the back end for ventilation, which is the only means I have of carrying off the moisture. The flue from the kiln to the dryer is 5 ft. by 6 ft. and has openings into each track 16 in. by 18 in. The tunnels are 80 ft. long, two tracks each tunnel, and we have 18 tracks. We use double deck cars and load 400 paving brick on a car. We are unable to draw more than 30,000 thoroughly dried brick each day and carry about 200 degrees temperature on the hot end of the dryer and sometimes the kiln end will show as high as 180 degrees. How can I overcome this?*

This question was published in the April 7 issue and answered by an expert on dryer troubles. Since the date of publication, we have had several requests for the address of the correspondent whose letter was published. In writing us, however, he neglected to give his address, and as a consequence, we are unable to put him in touch with men who may be able to give him information that will be of so much assistance to him. Will "349—Minnesota" send his address to the Editor of the Questions and Answers Department?

Standard Sizes for Partition Tile.

336. *Illinois—Will you kindly inform me where I may obtain the standard sizes for partition and fireproofing tile?*

Hollow tile fireproofing for floor arches and partitions is made in such a great variety of sizes and shapes that it would be practically impossible to enumerate them intelligently in the brief space afforded us by this department. Generally speaking, partition tile is made in sizes from 2 inches to 12 inches and floor arches from 6 inches to 16 inches in thickness. The various manufacturers of fireproofing publish catalogs that give the dimensions of the sizes that are most generally used, but there is no such thing as "standard"—that is, any regularly accepted dimension, as in steel sections.

Wants American Paving Methods for India.

479. *Bengal—I should be greatly obliged if you will let me have specifications of the best American methods of laying brick paved roads—sections of foundations, size of brick, fillers, etc. For the latter, tar would be of no use in this country owing to the hot climate. Brick paved roads are a new thing in this country and any information you can give me will be greatly appreciated, and, I feel sure, will help me considerably.*

The National Paving Brick Manufacturers' Association, and the Western Paving Brick Manufacturers' Associations, through their respective secretaries, have sent this subscriber all of the printed matter on brick paving construction that they had. This will give him the information he requires, and will, we have no doubt, favorably impress the builders of roads in the country that lies "somewhere East of Suez."

Wants Sample of "Dubltex" Brick.

344. *Pennsylvania—I see in your magazine about the new kind of brick called "Dubltex" and would like very much to have a sample. Can you tell me where I can obtain one?*

We understand that the Martin Brick Company, with offices in the Empire Bilding in Pittsburgh, Pa., are representatives for western Pennsylvania, for the Everhard Company, of Massillon, Ohio, the firm that makes the "Dubltex" brick, and which owns the patent office registration on the same. There is, of course, no patent on the texture or the manner of producing it.

"We Are Having Trouble with Our Drier."

318. *Kansas—Will you please let us have the address of H. C. Russell, who wrote an article in "Brick" the latter part of 1913? We want to get in correspondence with him about drier troubles.*

H. C. Russell, who wrote the article "Making Your Dryer Efficient," which appeared in the Dec. 2, 1913, issue, may be found at 2512 F. St., N. W., Washington, D. C.

Preheating a Plastic Clay.

430. *West Virginia—I have a sample of clay before me which has baffled me, up to this time, and will ask your assistance. It is very plastic clay and resembles Tennessee ball clay in color and strength. It acts very differently, however, in drying, cracking all over the surface and is very tender when thoroughly dry. The shrinkage is about seven per cent. I can stop the cracking by adding about twenty per cent Tennessee ball clay, but do not wish to adulterate, as this*

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Purchasers desired for the new process for the production of fired artificial stone from waste material, under domestic and foreign patents. The necessary machines for the purpose are nearing completion. Patent for sale and licenses to be allowed. "First come, first served."
Only serious inquirers are requested to communicate with the address, B. C. 1729, care of the Business Department of the Tonindustrie-Zeitung, Berlin, N. W. 21, Germany.

The Department of Clayworking and Ceramics.

Established by the Legislature in 1902 at the New Jersey State College, Rutgers College, New Brunswick, N. J.

Two courses have been provided: The regular course of four years; a short course of two years designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc. Director.
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How to Analyze Clay

A practical work for practical people. A Text Book for Clay Analysis, by Holden M. Ashby, Prof. of Organic Chemistry, Harvard Medical College, and Instructor Chicago Night School of Chemistry. An Aid to Beginners and full instructions for making clay analysis. 64 pages, with illustrations. Postpaid to any address in the world, $1.00.

Brick and Clay Record
445 Plymouth Court, Chicago, Ill.

lowers its fusing point, which is about 4,000 degrees F. Can you suggest a method of working this clay and avoiding the cracking? I have aged the clay for several months and have tried casting, pressing and throwing, with no results. Have added flint and grog to open the clay, and with no results. As I have said, I can cure this fault by adding ball clay, and still have a splendid refractory clay, but I am not willing to do this until I am sure that there is no other way.

Professor Bleininger, of the U. S. Bureau of Standards, has shown that the drying behavior of excessively plastic clays can be improved in a decided manner by preheating them to temperatures of from 200 degrees to 400 degrees C, the intensity of the heat treatment depending upon the clay in question. The results of this work showed that;

1. Preheating seems to convert part of the plastic clay substance into a modification which can not be made plastic again. Such clays dry more easily, due principally to increased porosity.

2. The preheating should be carried on at as low a temperature as possible, only high enough to overcome the drying difficulty. High temperatures with some clays result in excessive pore space which may give rise to burning difficulties due to cracking. It is quite likely that some clays cannot be preheated at all owing to the short temperature range within which the change takes place. It is impossible to give general rules; each clay must be studied by itself.

3. Most clays seem to require more careful lubrication in the preheated than in the normal state. The amount of tempering water should be kept as low as possible.

4. There seems to be a tendency on the part of the preheated clay to release its soluble salts more readily than normal clay; this would indicate a greater tendency to show dryer efflorescence.

Depending on the amount of clay, the time required varies from 3 to 5 hours. The rotary dryer seems to be the most suitable apparatus for this paper.

A more detailed description of this investigation can be found in "Bulletin No. I—Technologic Papers of the Bureau of Standards." It can be obtained free of cost by addressing The Director, Bureau of Standards, Washington, D. C.

Wants Literature on Sand Lime Brick.

427. *Wisconsin—We would be interested in any literature in regard to sand-lime brick and would appreciate any you might obtain for us.*

Bulletin No. 18 of the Illinois State Geological Survey (F. W. DeWolf, director) Urbana, Ill., is called "A Study of Sand Lime Brick" and contains a fund of valuable information regarding the composition and manufacture of this kind of brick. It also contains a list of 61 books and papers that deal with the subject, many being in foreign languages. We believe you will be able to obtain this Bulletin without cost, by applying to Mr. DeWolf.

Wants Books on Drying.

373. *Idaho—What have you learned of the book we wished to order through your book department—"Die Brennofen" by Schmatolla? We want this book if we can possibly secure it. Have you any book that treats on the construction of dryers?*

Schmatolla's "Die Brennofen" is published by Dr. Max Janecke, Hospitalstr., 10, Leipsig, Germany and will be placed in our book department at once, so that our readers may obtain copies from us at any time. Regarding books that treat on drier construction—we have one book called "Drying Brick" by Richardson, which is in pamphlet form. This book costs 25c. Another book—"Brick Drying" English edition, costs $1.00. In addition to these "Modern Brickmaking" by Searles, price $5.00, treats very comprehensively on this subject and because of its thoroughness in taking up all matters pertaining to the manufacture of brick, would be of considerable value to you.

Wants Old Copies of "Brick."

421. *Tennessee—In one of the old issues of "Brick," about April or May,* 1908, *was published an article, written by Walter A. Hull, and some correspondence relative to the article followed its publication. The article was entitled "Smoke". I would appreciate it very much if you would advise me as to the date of the publication of that article and of other articles that I sent you about the same time. Also let me know whether it is possible for me to secure copies of the issues containing these articles.*

An article entitled "Smoke" was published in the May, 1908, issue, on page 233. The author's name was not given. We have a bound copy of the magazine for 1908, but no loose copies. The former is the only volume we have, and consequently is not for sale. Has any reader a complete, or partially complete file for 1908 that he would be willing to part with, for a consideration?

Wants Tally for Brick Machine.

434. *New York—Can you advise us if there is on the market any instrument which may tally the amount of brick made by a brick machine, and which may be attached to the machine?*

Chambers Brother Company 52nd and Media Sts., Philadelphia, and the Ceramic Supply and Construction Company, of 280 North Front St., Columbus, Ohio, both manufacture devices of this character. Do not, however, make the mistake of figuring your output on the basis given you by the number of brick made by the machine. It counts the spoiled brick right along with the good ones and makes no deduction for those that go back to the pug-mill.

Wants Names of Manufacturers of Chrome Brick.

451. *Texas—Will you please give us the names of manufacturers of chrome brick in England, and also the American addresses, if there are any manufacturers of this grade of brick in this country.*

The only American plants that we know of are those of the American Refractories Company, of Joliet, Ill., Harbison-Walker Refractories Company, of Pittsburgh, Pa., and the Stowe-Fuller Company of St. Louis, Mo. The following concerns in Great Britain also make chrome brick—Adam Mason & Son, Norwich, near Bolton, Eng.; Pickford, Holland and Co., Attercliff Road, Sheffield, Eng., Yorkshire Silica Fire Brick Works, Oughtibridge, near Sheffield, Eng.

Mail Course in Ceramics.

352. *Canada—Can you inform me where I can obtain a course by mail in ceramics—one that would give me the full knowledge of brick manufacture, terra cotta, glaze work and pottery? I am a brick manufacturer with no time to go to school. Therefore, I must look to the mail courses if there are any to be had.*

This question was published in the April 7 issue and one of our subscribers has sent us a slipping from the "Brick and Pottery Trades Journal" advertising a small booklet, published by the Searle School of Clayworking, Sheffield, England. The advertisement reads as follows: "A small booklet entitled 'Training for Clayworkers,' issued by the Searle School of Clayworking, contains some useful information for all clayworkers. It shows you how to get a sound training which will make employers willing to pay more than you are now receiving. No matter what your age or place of residence, you can be trained without interfering with your

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The patented rear dump feature of the Auburn permits one-minute unloading—and the action is so gentle the brick are piled without injury.

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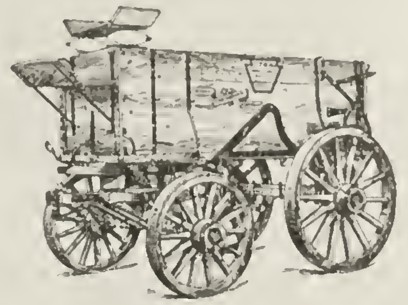

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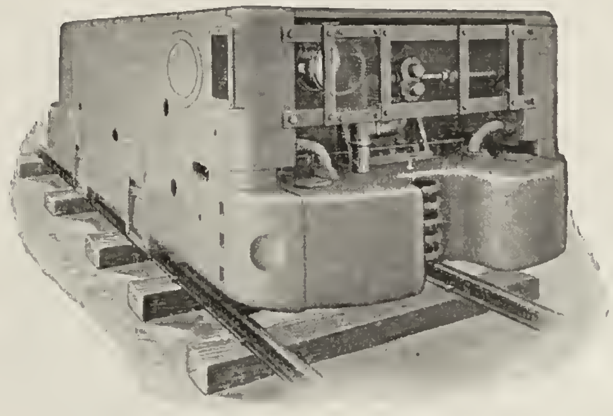

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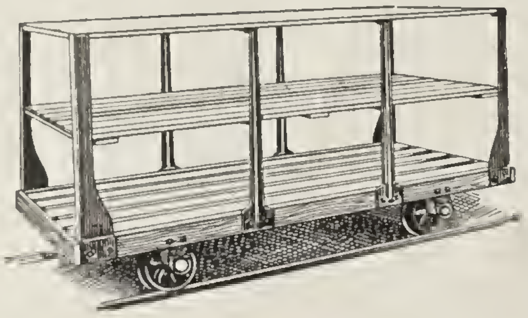

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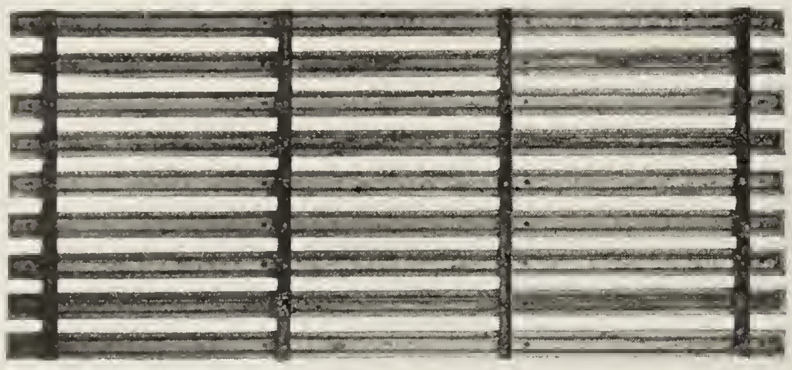

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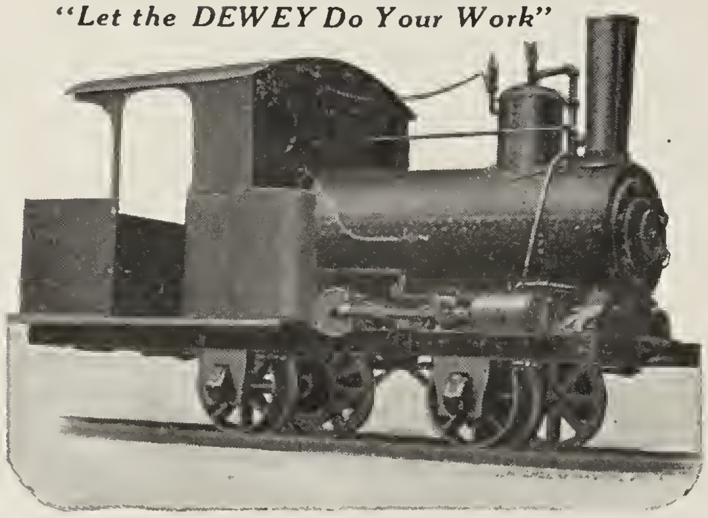

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present work. Special arrangements made for the Colonies. A free copy of this book will be sent to you if you will write your name, address and occupation on a post card and send it to the address below. Searle School of Clayworking, The White Building, Sheffield."

Wants Freight Bills Checked.

441. *Illinois—We would like to get in touch with a man that collects on old freight bills and at the same time see if it is possible to secure a better freight rate than that which we are now paying to certain points. We believe we are paying too much freight.*

The General Traffic Association, 715 14th St., N. W., Washington, D. C., is equipped to do this work. Read their advertisement on another page in this issue.

Substitute for Red Burning Sand.

358. *British Columbia—We make common brick by the soft mud process, but up to date have been unable to get a red-burning molding sand. We believe, however, we have some located, but as our plant is shut down for the Winter we have no way of testing it. Will you kindly inform us the best method of ascertaining whether our samples possess the desired red-burning quality?*

This question was published in the April 7 issue. Under date of April 13, Herbert Somers, of the Somers Brick Company, Atlantic City, N. J., writes: "We notice that subscriber No. 358, British Columbia, states that he is making common brick by soft mud process and has been unable to get a red burning molding sand. We have had the same difficulty and have substituted for the molding sand, pulverized salmon brick, which we have found works satisfactorily."

Wants Address of Ontario Brickmaker.

271. *Ontario—We write to inquire whether you are at liberty to give us the name of the party whose question you publish at 271—Canada, in your issue of Feb. 3.*

The name of the original questioner has been sent, it being our understanding that our contributors are willing that this be done, unless they express a wish that their names be withheld.

Wants Names of Canadian Paving Brick Plants.

452. *Quebec—We should esteem it a great favor if you could inform us of the names of the manufacturers of vitrified paving brick in Canada.*

This correspondent is the Canada Brick Company, Ltd., Transportation Building, Montreal. Being unable to supply the list wanted, as our Canadian subscription list is not classified, we ask our Canadian readers, if they make paving brick, or know of plants that do, that they advise us, or the Canada Brick Company, Ltd.

Kiesleguhr or Infusorial Earth.

429. *New York—Where can I obtain a small quantity of kieselguhr in or near New York?*

This question was printed in the April 7 issue and several readers have asked for the address of the correspondent. This has, in each instance, been mailed to them. E. T. Montgomery, assistant professor at the New York State School of Clayworking and ceramics informs us that kieselguhr or infusorial earth may be obtained in New York from Eimer & Amend, 205 Third Avenue, corner of 18th Street. Another correspondent, this from Philadelphia, asks us for the address of any concern that handles kieselguhr near the Quaker City, and we refer him to Professor Montgomery's reply.

Seger and Orton Cones.

439. *West Virginia—Where can I get the cones that are used by some sewer-pipe and fire brick companies to tell when a kiln is hot enough? I always do it by measuring before I start burning, and then measure before I close the kiln, and after I find that I have the proper shrinkage, I burn 24 hours longer. I would, however, like to experiment with the cones.*

Seger cones may be obtained from Professor Edward Orton, Jr., Ohio State University, Columbus, Ohio. With them is given a series of directions for use that will make your experiments very simple.

Hollow Blocks in Kiln Construction.

378. *Missouri—We are constructing some new kilns, 30 ft. inside diameter, and are thinking of using hollow blocks for the construction of the hub and that part of the kiln below the skewback, but with solid brickwork between the main kilnband and the arch—the kiln, of course, being lined with fire-brick. We would like to have your opinion on the subject.*

This subject was submitted to an expert kiln builder, who says that, in his opinion, hollow block construction is impractical in kiln building for anything except the floor. The walls and skewback should be of brick, since one has to resist the expansion of the kiln contents and the other the thrust of the arch. Hollow block would be apt to succumb to the pressure.

Bakers' Ovens of Brick.

389. *Massachusetts—Can you give me any information in regard to the building of bakers' ovens of brick, or tell me where I can get information regarding this? This is to be a single oven to be used for baking bread.*

The Middleby-Marshall Oven Company, of Chicago (769 W. Adams St.) or A. J. Fish, of Walworth, Wisconsin, will give this correspondent the information he desires.

As to "Lenox" Brick.

Answers to Question 440—New Jersey, which asked where "Lenox" brick were made, have been received from the Lenox Brick Company, of Cliffwood, N. J., who make the brick so branded, from Cullen W. Parmelee, director of the Department of Ceramics, Rutgers College, and no less than seven other readers of the "Questions and Answers" column. This should give encouragement to our readers, who may be assured that even though their question be beyond our knowledge, there is every chance of the knottiest problem being solved through the publicity given it in these pages.

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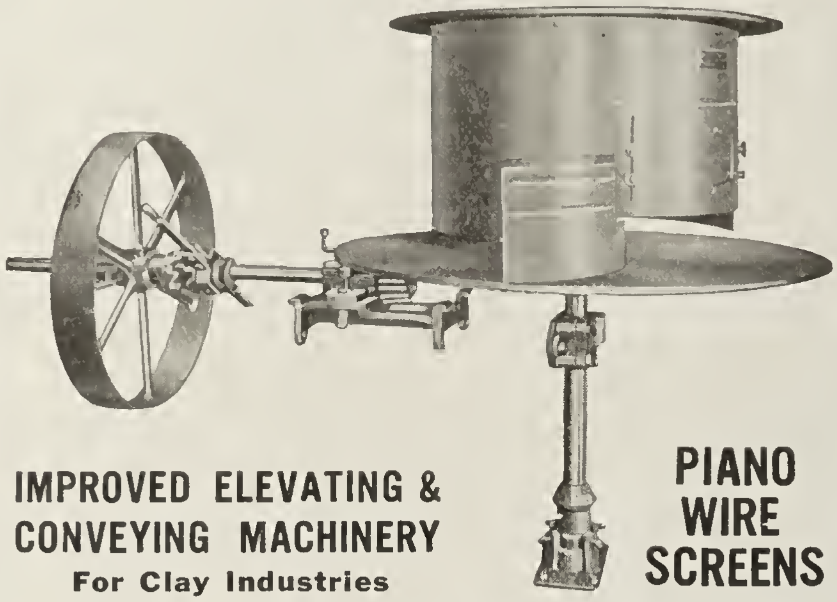

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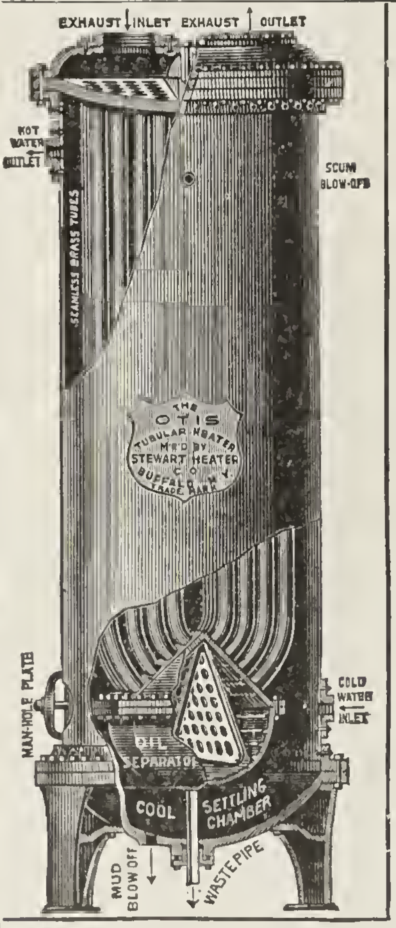

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Prize Problems

A Series of Problems That Are Submitted to Our Readers and a Reward Given for the Most Practical Solution

In the December 2, 1913, issue, "Brick and Clay Record" inaugurated a "Prize Problem" contest, in which a three years' subscription is given for the best answer to each problem. Seven of these problems have already been disposed of and the prize-winning answer to the eighth is printed below. Problems Nos. 9 and 10 are offered for your consideration.

PROBLEM NO. 9

What would you do if you were manufacturing face-brick and depended upon certain cities within a radius of 100 miles from your plant to take the greater part of your output and pay you a price that enabled you to make a lower yard price to dealers in more distant markets, and, the demand in one or more of these nearby cities having fallen off quickly, the dealers told you your prices were too high. What would you do?

Send in your answer to Problem No. 9 so it will reach us before May 16. Address your letter to Prize Problem Contest Editor, "Brick & Clay Record," Chicago.

PROBLEM NO. 10.

What would you do if you found that the expense accounts of your salesmen were increasing, without a corresponding increase in the profits you were able to make on the material they were selling? It is understood that you have every confidence in their individual integrity and believe them when they state that the "high cost of living" has been extended to the legitimate expenses that they are compelled to meet in the way of hotel and livery bills, entertaining customers and the like. If the salaries you paid them were as high as you could afford and as low as they were willing to work for, what would you do to meet the growing deficit in your profits caused by the increasing amount of "traveling expenses?"

Send in your answer to Problem No. 10 so it will reach us before May 30. Address your letter to Prize Problem Contest Editor, "Brick & Clay Record," Chicago.

Answers to Problem No. 8.

C. E. Carter, R. F. D. 34, Peoria, Ill., is awarded the prize for the best solution of problem No. 8, which was:

His answer follows:

In most small towns, the building laws are very lax, permitting people to build frame buildings. This causes the lumber men to build up a good business, and, having an established trade which includes all of the responsible contractors in the town, they have the advantage of the friendship of these men, who influence the building type. This friendship extends not only to the individual (the lumber dealer), but to the material that he handles.

The man who is about to build naturally talks the matter over, in advance. He naturally seeks the advice of some good builder and finds him friendly to the materials that his friend, the lumber man, has stamped with the mark of his own respectability. These materials are often metal lath and cement, as well as lumber and siding.

The brickmaker can offset this friendly influence in two ways. One, by creating a personal friendship among contractors, and making them friendly to brick by treating them as well, in the small orders they throw his way, as the lumber man treats them on the larger orders they give him. The other is to create a friendship for brick by showing them how good brick really is. This is a matter for demonstration and means a lot of hustling to get a chance to demonstrate.

The local newspaper offers a chance to shout "Brick—Brick—Brick" often enough and loudly enough to make some prospective home builder willing to listen. The fact that the brickmaker carries advertising will give him a chance to get into the reading columns with some news about the kind of work he is serving in nearby cities. Gradually he will mold public opinion until wood and cement will not seem the only logical building materials.

Then his cultivation of the local contractor will stand him in good stead, for having learned that some man is ready to build in brick, the brickmaker can go to the contractors most apt to get the job, and win them to brick—if only for one job. The contractors will be glad to get the chance to show that they "can build any kind of a house" and that their ability is not limited to frame and stucco.

All that remains is to serve the best brick he has on hand and to watch the work, so that, when finished, the house will win friends for brick, instead of discouraging its use—which too many badly laid brick walls do.

R. C. Gangewere, of Chattanooga, Tenn., receives "honorable mention" for the following:

First I would get all of the data possible, such as photographs, with newspaper clippings, giving details of the number of failures in concrete and with these and with my own knowledge that concrete is a rheumatism producer, with great activities along the line of influenza and even pneumonia, would go to every home builder that favored concrete and advise him to engage a good family physician. I would also touch on the fact that, as insurance rates are higher on frame-stucco construction than on brick, so the day is imminent when life insurance rates will be higher for those who live in concrete walls than for those who are housed in healthful brick. I would point out that while concrete was well adopted for morgues and vaults, it is a good corpse preserver, but a sure life killer.

Regarding lumber, I would build two small houses, say 6 ft. by 6ft., one of brick, with a metal roof and the other of frame, with shingles. I would advertise that the two houses would be set on fire on a certain day and at a certain time, and would do this by taking two shovels full of hot coals—throwing one on the roof of the frame house and the other on the roof of the brick house. After the flames were cracking merrily in the frame house, I would sit in my little brick house, with a newspaper in my hand, and, if possible, invite some of my neighbors in for a little chat on the question of frame houses.

If that would not convince them, I would pull stakes and change my location, realizing that I would give more than I received, so long as I staid in that neighborhood.

Clay Sewer Pipe Makers to Bring Suit.

Manufacturers and dealers in vitrified clay sewer pipe are contemplating a court test of the right of Columbus and other municipalities to exclude their product from use in building construction. Their ire has been aroused by the action of State Plumbing Inspector W. C. Groeniger, in excluding this material from the state building code, though its use is authorized by state law.

The act specifies that either castiron pipe or earthenware pipe may be put in, but the 1914 building code, which became effective Feb. 1, says that only castiron pipe can be accepted. This ruling was adopted by the state board of health.

Attorney General Hogan, however, has held that the earthenware pipe cannot be excluded, and the state board of health, in all probability, will revise the order promulgated by Mr. Groeniger and allow the use of the earthenware pipe.

In a brief submitted to the state board of health at Cleveland Thursday, John L. Rice of Columbus, secretary of the vitrified clay industry, quoted Dean Edward Orton, jr., of the college of engineering of the Ohio State University, who said that the vitrified clay pipe is equal to the best castiron pipe, and that he did not see why its use should be excluded. More than a score of plumbing inspectors, engineers and builders were quoted as giving their approval of the clay pipe for sewer use.

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The Rust Clay Feeder

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Trade Review

Giving a Sidelight and Forecast on Business Conditions in the Country at Large

By Allen E. Beals

WATCHING building-plan filing reports come in from the fifty-seven varieties of leading American cities is like taking a mouthful of water and sitting on the stove until it boils. It's painful. Here is May first, but whether it indicates the making or breaking of the 1914 building season cannot be foretold. However if flying straws mark the wist of the wind, there are reasons aplenty for believing that when the year closes it will compare favorably with any moderate business period of like span in recent times.

The timidity that has prevailed during the first quarter of the year, still rules as May day dawns, not because there is any boom-bursts in the air, but simply because the long period of depression has given over-production in building construction the country over, an opportunity to be absorbed and investment capital a chance to find its bearings. Plan filings for April show an even, healthy gain in practically all large centers, excepting New York, and even in that cold, conservation bailiwick signs of returning life were discernible at times. Chicago is holding its own, Boston is doing nicely, thank you; New Orleans is scared to death over the war and is not taking clay products in a way to brag of; Los Angeles feels the boom that the Panama fair is bringing to San Francisco while Seattle is moving along practically at the same level it hung around last year, or just this side of the $3,000,000 mark for the first quarter. In the interior April statistics will show a crimp in the building figures in the mountain districts, largely because of labor troubles; Saint Paul's building figures reflect the easier tone in all business with a decided gain over the filings for a corresponding period last year with Minneapolis running it a close race for second place and Philadelphia slightly behind last year's first quarter record. From these centers the character of the current demand for clay products may be measured and if character of construction, rather than mere volume and value are considered, there is indeed cause for satisfaction in the trade. "There's a Reason."

Interest rates on building money are lower. New York cuts its proffer a quarter of a cent and had its bond issue three times over-subscribed. The state did the same thing some time before that and got away with it. Several big concerns, the General Electric, the Pennsylvania and others floated notes at lower rates and made good and the great volume of mortgage money now going out in New York city is bringing 5½ per cent as against 6 per cent late last Fall. Out in the West where the dominance of Wall street is not so acute the fault is not so much on the tightness of money as the tendency to buy in small quantities rather than take a chance on speculation. Out in San Francisco speculation is rife, when it comes to building construction, but while volume mounts, the value is weak. Therefore the boom attracts the lumber and cement interests rather than burned clay. Other Pacific Coast building plan filings, however, offer more interest to clay products manufacturers because realty investors expect to retain as permanent residents many of the thousands that visit the coast next year and as many of these people come from fireproof eastern and interior city apartments, their eyes will be attracted a great deal quicker to a burned clay house than to a flimsy frame of concrete shell dwelling. Hence the improvement in inquiry that the clay products interests in the western end of the country are already beginning to feel.

Down south the disturbed affairs in Mexico are creating large hopes for the future. All of Mexico has got to be rebuilt and the Mexican is as firm a booster for burned clay as the clay man himself. Sooner or later reconstruction must start and with peace will come a vast demand for burned clay building products. American enterprise is making itself felt there and the brick manufacturers already feel the bulk of the future market across the border. In the mean time, however, clay products producers are doing their little share of watchful waiting, sizing up, in the interim, the newest little machinery kinks for supplying this future market. The depression now prevailing there cannot long endure for this is the golden opportunity of the South. Since long before the Civil War it has needed a trade impetus that would make potent its Gulf cities as exporting and transshipping centers and the Panama Canal and the rehabilitation of Mexico will prove to be the boon to all that territory south of the Mason-Dixon line.

In Chicago and the Lake cities April filings show nothing very encouraging as to the future. Here and there are slight gains, but that part of the country like the Eastern seaboard seems to be afflicted with altogether too much legislative juggling which has helped to upset the labor market. These two districts need nothing more beneficial than a cessation of legislation affecting building construction and building labor to give investors a chance to find out where they stand so that they can determine whether the burdens already imposed upon them are more than will give them a bare 6 per cent on their operations.

This hesitation on the part of investors is alone responsible for the slowness of plan filings to come out. Advices at hand from architects' offices throughout the country indicate that there is a larger quantity of prospective work on the boards than there was at this period in 1913 or 1912, but actual filing orders have been held back by owners until they can find out what the legislators have been doing to them during the last year. In the mean time clay products producers have been compelled, along with other building material manufacturers, to cut their prices. Take New York, for instance. Common brick now brings as low at $5 per thousand wholesale. Normal prices run to $6.75 and $7 when the manufacturer figures taking a profit of about 75 cents from every thousand. At present prices he is actually losing from 60 cents to $1 a thousand and yet he can do nothing.

In the mean time face brick is suffering from the same cause, although April is showing a tremendous gain in the volume of face brick being specified. Plan filings from 42 cities up to April 25 showed that face brick specifications in buildings of all kinds except garages made a gain of 6.09 per cent over the corresponding period in 1913 and 7.01 per cent over the filings for the same class of buildings in the same month in 1912. This seems to show that the face brick propaganda and educational campaign are bearing fruit.

But paving brick has received the biggest boost of all clay products within the year. The automobile is forcing the adoption of this material because of its dust-free charactertistics. Plain sanitary motives prompt the auto-

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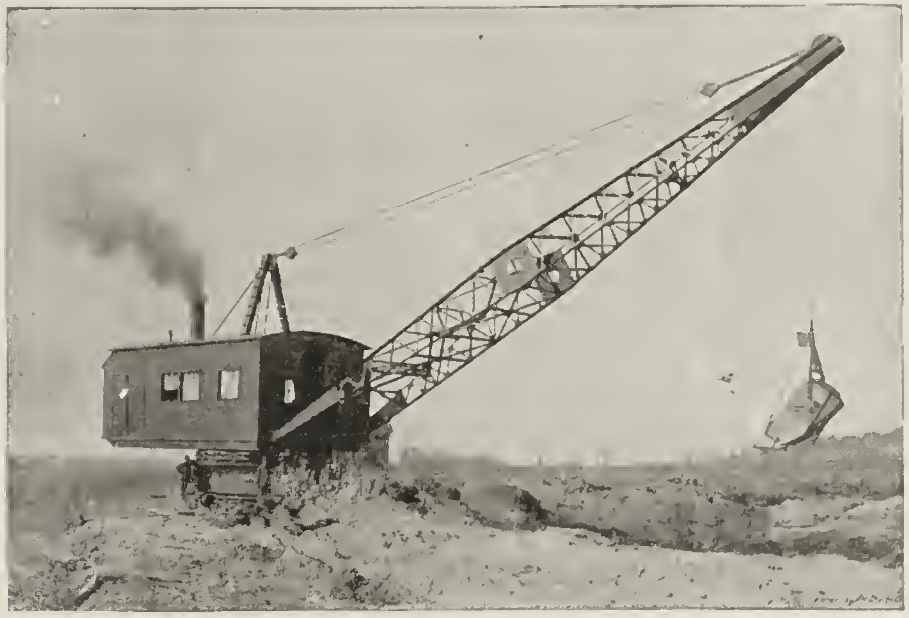
Crawford Drag Line
Excavators



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Shale and Surface Clay

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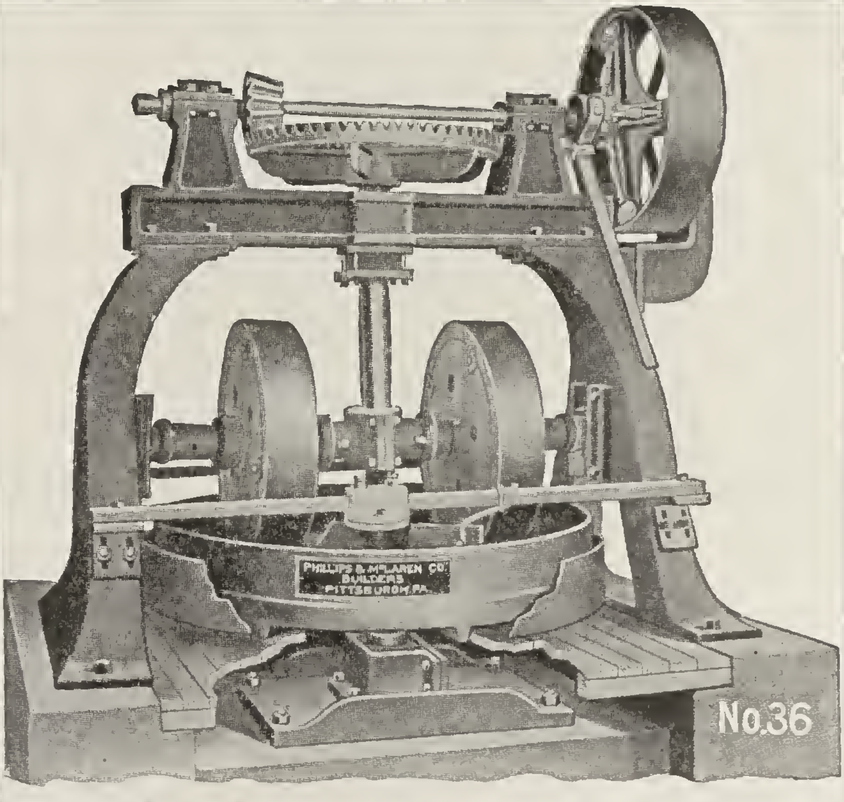

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P.L.C. CO. TRADE MARK
CAPACITY OVER 2,000,000 BBLS. YEARLY
ALLENTOWN, PA. AND CHICAGO, ILL.

Well Burned Brick

Makes a slow-wearing, dustless pavement, if properly laid. The Base, Filler and Grout must be made of the best grade of cement.

And that is LEHIGH PORTLAND CEMENT

Not only high in strength, but dependably uniform. Set the proportions for the mixtures, adhere to those proportions and the job, so far as the cement is concerned, will be uniform throughout. The same strength, the same color, the same fineness, the same dependability.

Lehigh Portland Cement Co.

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mobilists, the actual road builders of this country today, in forcing road departments of state governments to lay only brick roads on main arteries. And it is gratifying to find that paving brick producers are not so far losing their heads as to crowd on higher profits right at the time when the great opportunity of their careers is at hand.

Generally speaking the country is over-legislated. Big business is alive to the arrival of the day when Uncle Sam is going to regulate it, but it has received its chastisement in such big doses that it is actually welcoming the Mexican crisis as a counter irritant to keep the mind of the law makers at Washington off the sore spot in commercialdom until commercialdom has had a chance to rub on a little vaseline or put some padding in its pants.

The New York Letter

Common brick consumers and sellers here in New York threw a three-ply conniption during the middle of April when the report gained circulation that William H. Barnes, who is said to control the sale of more common brick than any other single individual in this territory, had resigned his membership in the Greater New York Brick Company. The board of directors, however, declined to accept it, and Mr. Barnes was requested to reconsider his action. By Friday, the seventeenth, the company was able to announce that Mr. Barnes would remain with Gnybco.

But the running mate of the Barnes rumor was a similar one that John McNamara, the veteran brick seller, had also pulled out of the Park avenue concern; and then there was a trailer to the effect that both the resignations were inspired by interests hostile to the formation of the barge company which was announced in the April 21 issue of "Brick & Clay Record."

These apparitions were made out of whole cloth. Mr. McNamara had no intention of divorcing himself from the Gnybco interests. As for the threatened dismemberment of the Hudson common brick selling concern because of disatisfaction over the formation of the barge owner's company, there is no opposition to the idea, all the yard owners, whether associated with the Greater New York Brick Company or independent, being privileged to come into the joint stock carrying company to help reduce the hauling charges on the Hudson. Hence there is no reason for even supposing that an antagonistic movement could be engineered against the selling company when it is the purpose of the selling company to help the manufacturers market their products more cheaply.

Up along the Hudson river there are few signs of activity. At this writing nearly every night has brought a near-to-zero temperature while the days have been warm enough to grow a full hay crop in a thimble. Therefore it has not been possible even to roll the yards.

Nobody along the river seems to know exactly what is going to crack in the next few months. There is a tremendous quantity of brick still unsold in the sheds and there are good prospects that prices will be low for the finished product in this market. In the meantime the cost of materials has steadily moved up and so has the cost of living for the employees at the yards. It has been a long Winter and the credit of the men at the stores has been stretched to the utmost. In the meantime prices in this market have been weak and if the market is flooded with Hudson brick now, quotations will be still more ragged with the result that brick will actually be selling below cost of manufacture.

At present fair Hudson brick is being sold at the New York docks below the cost of production. One manufacturer figured up all his cost data and found that the brick on his yard actually cost him more than he is getting for his commodity in this market. His case is not an isolated one.

There is reason to believe that the market will improve, and it is discovered in the remarkable municipal bond sale this week. The city cut the interest a quarter of a cent and yet the issue was thrice over-subscribed. If building material interests in general wanted to use a stethoscope on the building situation this sale put the instrument within easy reach. If it shows anything at all it reveals the fact that money is available only for sound projects where the borrower's credit is good. In other words 1914 will not be a year for speculative building. This may or may not be good news for brick dealers, for it means that while they will have to take business at narrow margins they will be far surer of their money than if they were selling haphazardly to a lot of shoestringers at good prices, but with small chance of ever getting their money.

Another side of the non-speculative character of the building movement is found in the fact that a great many brick orders carry with it building paper. That, in New York building material parlance, means that many builders having gilt edged propositions and not desiring to pay the high interest rates that the building money lenders have been demanding up to the present time, have adopted the stock plan of carrying out their building financing. This stock is given to the supply man and sub-contractor as part payment. This arrangement is all right if the stock can be cleared quickly and profitably, but in a tight money market it is likely to decorate the interior of safes instead of making the mare go.

In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

ARIZONA

A. B. McClimans, of Winslow, Ariz., is making plans to install modern brickmaking machinery in his plant at Winslow.

CALIFORNIA

The Inglewood Brick & Tile Company, of Los Angeles, Cal., has filed a certificate of bonded indebtedness to the amount of $150,000.

J. H. Hoomsby, of Galt, Cal., and others, are planning on the erection of a brick manufacturing plant at that place. A suitable location has already been secured.

The city authorities of Berkeley, Cal., have called for bids for the construction of four tributary sewers at an approximate cost of $40,000 each. Berkeley has available for sewer purposes a total of $475,000.

Fire of unknown origin damaged, on April 13, the plant of the Simons Brick Company, at Boyle avenue and the River Bed, Los Angeles. A considerable quantity of

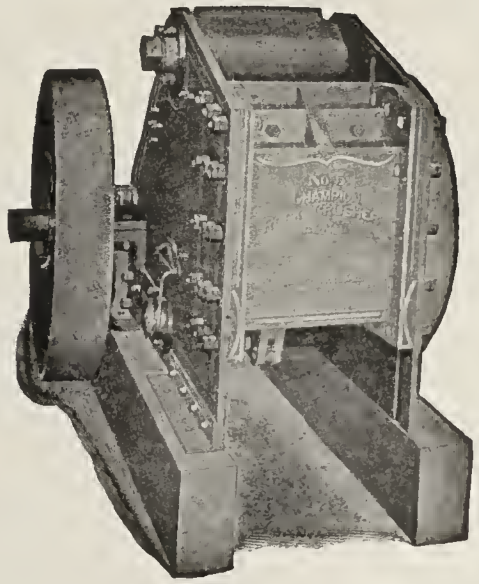
Profit in Every Dip

—then plenty of dips, and you have a clay digging proposition that spells *dividends*. And that's just what we offer you in a MARION Revolving Shovel.
These little machines have revolutionized clay mining methods by doing this work easier, better, quicker and *Cheaper*—and they'll dig *Your* clay in the same way.
Are you having trouble with labor? Can't you maintain a steady tonnage? Isn't the clay well mixed? Is it costing you too much to dig?—Then you need a MARION. Write for Catalog 92, *Today*—it tells why.

THE MARION STEAM SHOVEL CO.
Station A. (ESTABLISHED 1884) MARION, O.

Saving Money
By Efficient Machinery

CHAMPION CRUSHERS

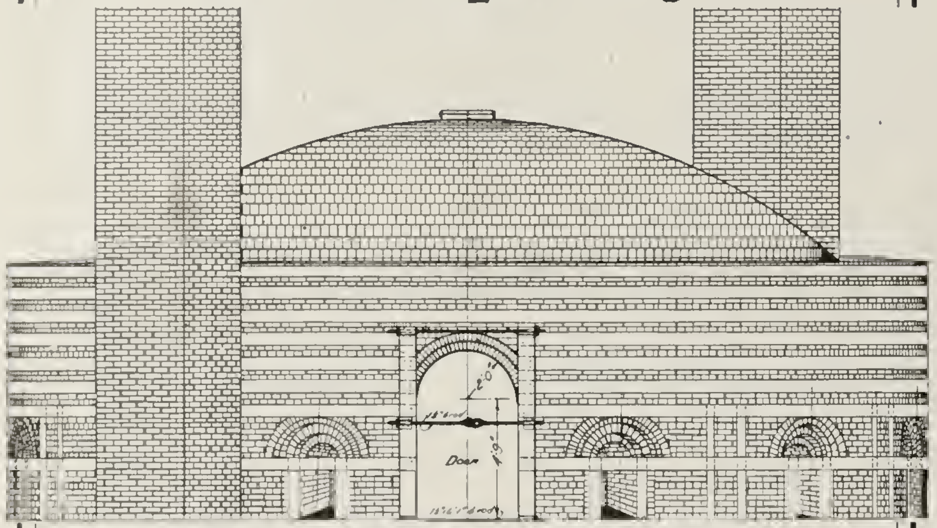


A Champion crusher will save the cost of sledging shale, fireclay or other hard materials. It will also save the wear and tear on a dry pan by furnishing a small product of uniform size. Why not install a crusher on trial?

Write to *Ask for our complete line.*

The Good Roads Machinery Co.
Kennett Square, Pa. 1632 Oliver Building Pittsburgh

Claude Smith Company



A Popular Type of Kiln for Hollow Ware

Kiln Builders

417 S. Dearborn St., Chicago, Ill.

Would You Like to Attend College?

Have you a son, daughter or friend wishing to attend school?

Do you know some bright boy or girl wishing to attend some school?

WE HAVE SCHOLARSHIPS IN OVER A HUNDRED HIGH-GRADE COLLEGES —INCLUDING MEDICINE, MUSIC, BUSINESS, LITERARY, ETC. These we took to settle a business deal, and will sell them at a liberal discount, and will take deferred payments from worthy applicants. Or will trade for any article that we can use.

We have many furnishing board, as well as tuition.

When writing state age, name of school you would like to attend, location preferred. We cannot place pupils in a school once attended or that pupils have had negotiations with.

Address

GOOD BUSINESS

445 Plymouth Court CHICAGO

equipment, stock and fixtures were destroyed, the entire loss being placed at $15,000.

The Los Angeles (Cal.) Pressed Brick Company, has filed articles of incorporation, C. H. Frost, of Pasadena, W. C. Patterson, I. N. Van Nuys, West Hughes and Henry Obee, of Los Angeles, Cal., are the incorporators.

The California Silica Brick Company has been incorporated at Los Angeles with a capital sock of $150,000 by W. B. Dickey, S. B. Smith and G. J. Horton. The company will engage in the manufacture and sale of a special silica brick.

The Thermos Company of New York, owners of a special process for manufacturing pottery, are negotiating for the purchase of a site of two and one-half acres near Martinez, Cal. The proposed site is provided with both rail and water shipping facilities.

A job involving the use of nine hundred thousand common and one hundred and fifty thousand paving brick will be awarded by the War Department on May 11 for the erection of five stable buildings at Fort Winfield Scott at the Presidio, San Francisco, Cal.

The National Burnt Clay Construction Company has served notice on the San Francisco City officials that the proposed use of crushed brick for the flooring and walls of the new San Francisco City Hall will be an infringement on the patents held by the company.

The Holmes Lime & Cement Company, a large handler of lime and plaster in San Francisco, Cal., has filed articles of incorporation. The capital stock of the company is placed at $200,000, the incorporators being H. C. Lucas A. L. Whittle, J. A. Gregg and J. F. Shuman.

DELAWARE

The Silicia Brick Company of Washington, D. C., has been incorporated at Dover, Del. Robert D. Marshall, of Washington, D. C., is interested. Capitalized at $60,000.

The Western Engineering & Mfg. Co., of Wilmington, Del., has been incorporated for $55,000, to manufacture fireproofing products. C. B. Bishop, C. J. Jacobs and H. W. Davis, all of Willmington, are the incorporators.

ILLINOIS

The Heine Chimney Company has announced the removal of its Chicago offices to 123 West Madison St., in that city.

The American Refractories Company has moved its offices, which were formerly at 72 West Adams street, to 208 South La Salle street, Chicago.

Mr. Lambert of the Beaverville (Ill.) Brick and Tile Company spent a few days in Chicago during April, reporting the inquiry for tile as being very satisfactory.

The Illinois Brick Company has moved its Chicago offices from the Chamber of Commerce Building, to the Conway Building, on Washington St., between Clark and La Salle.

The Development Association of Ottawa, Ill., is considering the offer made by the Texas Sand Company, which wants to erect a plant at Ottawa, Ill., for the purpose of making silica brick.

Bids are being taken for the fireproof extension to the machine shop of the Excelsior Tool & Machine Co., of East St. Louis, Ill., upon which and the additional machinery to be installed, more than $10,000 will be expended.

The American Clay Machinery Company has moved its Chicago offices to the new Conway building, next door to the Chamber of Commerce, where the old offices were located. The new quarters are on the sixteenth floor and are spacious and comfortable. A cordial invitation has been extended by the American Clay Machinery Company, to brickmakers and clay workers in general, to make these new offices their headquarters when visiting in Chicago.

The Gem City Press Brick Company, of Quincy, Ill., believes in using printer's ink locally and advertises in the Quincy "Herald" in a most attractive way. Beginning with the information that the plant has been in operation all Winter, and has a stock sufficiently large to insure prompt delivery through the Spring, the advertisement goes on to say that the weekly output is 100,000 brick—enough to take care of any natural demand in Quincy. An announcement of this kind helps to draw attention to the manufacturer and indicates his intention of giving good service to his customers.

INDIANA

Charles D. Gleet, of Grammer, Ind., wants to secure information relative to burning drain tile with oil.

E. J. Jones, 1215 N. Jersey Avenue, Indianapolis. Ind., wants to get in touch with manufacturers of common building brick with plants in Indiana, reasonably near Indianapolis.

Marian Houk, a prominent clayworker of Brazil, Ind., has just filed a voluntary petition in bankruptcy in the United States District Court of Indiana. Assets $620, debts $1,400.

Henry C. Deitrick, 70 years old, a pioneer in the clay industry in Indiana, was buried a few days ago at Harmony, Ind., with military rites. He was one of the first here to commercialize clay deposits and conducted a pottery for many years.

W. J. Gilbert, of the Indiana Sewer Pipe Company of Mecca, Ind., has just purchased the Brazil (Ind.) Chicago sewer pipe plant from Page & Joyce, Chicago. T. H. McFerron will be the new general manager. The plant, which has been idle since Fall, will now give employment to many clayworkers. The sale price of the real estate is said to be $65,000.

D. Brown, writing on the letter head of the Gary Granite Brick & Stone Co., of Highlands, Ind., states that Hammond and Gary (Indiana) capitalists are about to erect a sand lime brick plant near Chicago, which will have a daily output of 150,000 and that the plans are drawn to permit an increase to 200,000 capacity when the business is established. The work of erecting the plant will be started in a very short time.

IOWA

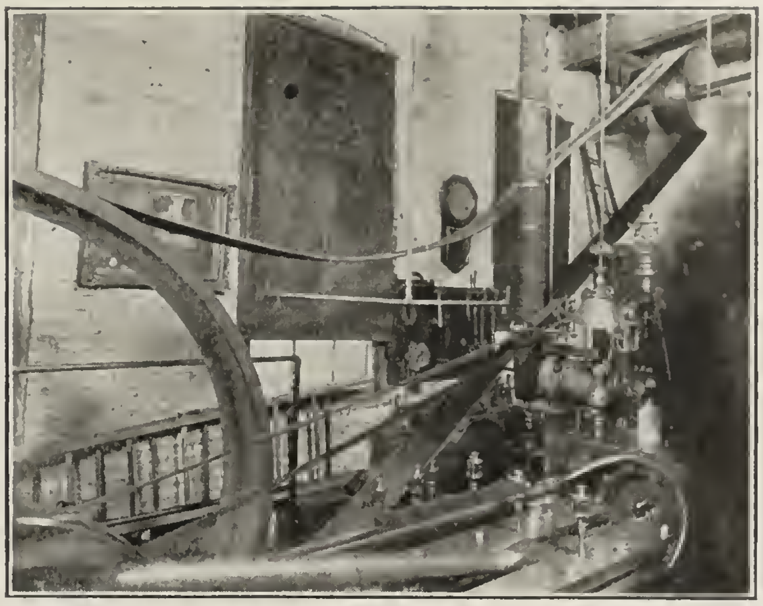
J. B. Stiver of Fairfield, Iowa, has bought the tile factory in Burlington, Iowa, and, it is understood, will put it in commission within a few months.

The plant of the Webster City Brick & Tile Company, of Webster City, Iowa, which was sold at a receiver's sale to Henry Taget and P. W. Lee, will be practically rebuilt. It is the intention of the new owners to have the plant running by July 1st. New articles of incorporation will be filed.

KANSAS

The Union Brick Company, of Iola, Kans., is looking for a Missouri location, for a 100,000 daily brick plant. It will leave Kansas on account of the shortage of gas.

The Buffalo Brick Company, which recently established sales offices in Kansas City, secured the brick contract for 11,473 square yards of three-inch vertical fiber to be used at Eldorado, Kan. The contract is one of several substantial ones being handled by the company.



If you could make a safe legitimate investment of $100.00 bring you back $200.00 in a year's time, would you do it?

We would and we think *you* would. However, the mere doubling, tripling or quadrupling of money doesn't begin to touch the possibilities from Cling-Surface.

As we recently showed you, Cling-Surface treatment of belting can be the direct means for saving from $90.00 to several thousand dollars per year by reducing transmission friction in belted plants of from 50 to 1,000 h. p. Considering the very small expenditure for a few pounds of Cling-Surface and considering the large return, what better investment could you make?

An example: The 10-inch belt in the plant of the Aird-Don Co., Troy, N. Y., as shown in the picture, transmits 40 h. p. from a 14-foot to a 30-inch pulley on 30-foot centers. The engineer here, Mr. Louis J. Landmeir, tells us that scientific treatment of this belt with Cling-Surface costs him only 90 cents per year. Then he goes on to say:

> *"Belt has had Cling-Surface treatment about 3 years. Is very pliable. No trouble with lacings pulling out or with belt slipping. Never have to take up belt. Used various belt dressings but never had such success as with Cling-Surface."*

Can you imagine how 90 cents could have been spent to better advantage?

Don't you think Cling-Surface worth investigating? Are your belts pliable? Do they run slack like the one in this picture? Do they pull maximum loads without slip? Are they waterproof? Durable? Troubleless?

They would be under Cling-Surface treatment.

Proof of all our claims awaits your inquiry.

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the life preserver for belts

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I am interested in Cling-Surface and your trial order proposition.

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Street ....
City .... State 74

"Be a Booster"

"The Truth About the Wayne County Concrete Roads"

—By Paul E. Green, M. E.

If you have some new streets or country highways contemplated in YOUR city or community, and there is a likelihood that concrete will be considered as a paving material, stop this waste of the people's money by boosting for vitrified paving block, no matter if you do not make pavers.

You are a clayworker and should work for burned clay no matter what form it may be.

Claywarkers, Use this Book to Fight Concrete

Paul E. Green is a member of the American Engineering Society and was employed by certain taxpayers of Highland Park, Ill., to investigate the famous Wayne County roads before they decided on concrete for proposed street improvements.

Mr. Green made an exhaustive report showing actual conditions and giving full data on these "perfect" concrete roads. His report was published in full in the Oct. 7, 1913, issue of "Brick and Clay Record." We have reprinted the report in pamphlet form for popular distribution.

Show a Co-operative Spirit in Your Locality

See that every taxpayer gets a copy of this pamphlet. We have printed them in a convenient and attractive form for distribution and offer them in any quantity at $20 per 1000, which barely covers the cost of printing. Smaller lots at $2.50 per 100. Sample copies free. Send for a copy if you missed the article in the October 7 issue of this magazine.

Brick and Clay Record
445 Plymouth Court, Chicago

The Western Paving Brick Manufacturers' Association increased its membership recently, when the application of the Lawrence (Kan.) Vitrified Brick & Tile Company was favorably received. The association is now recruited to war strength, so to speak, and is in a position to effect more favorable work for the brick industry than in the past.

Common and face brick manufacturers in the Kansas gas belt have resumed operations and are now shipping actively to all points in the Southwest. The gas belt members of the brick industry closed down for the Winter in most cases, because of the inadequate supply of fuel. Demand for gas for heating purposes is at present low, of course, and the brick manufacturers whose existence is dependent on the gas supply are again feeling that life is worth living.

Brick for silos was recommended by experts at the Kansas State Agricultural college at Manhattan recently, those in charge refuting the theory that steel or similar materials are necessary for this modern farm necessity. J. H. Miller, of the extension department of the college, summarized the findings as follows: "First—Silage keeps fully as well in the durable types of silos made of brick or hollow tile blocks, as it does in silos of wood or steel. Second—Where proper care has been exercised in putting up tile block or brick silos, they will not crack, blow down, nor be destroyed by the juices of the silage, and therefore may be classed as permanent structures. Third—The cost of constructing efficient and durable silos is but little greater in any case than the cost of those that will blow down, rust out or otherwise become unfit for use and in many cases the cost is actually less for these permanent silos than the prices at which agents are willing to sell those of temporary construction." Brick men, in view of these conclusions from authoritative sources, may expect to find the agricultural element heavy consumers of their products in the future.

MICHIGAN

The Ajax Brick Company, of Detroit, Mich., which is building a new plant, will be in operation by June 1st.

All of the drier brick plants in Detroit, Mich., are now running to full capacity, while the Summer plants are just beginning to re-open.

W. J. Clark of the Grand Rapids (Mich.) Brick Company spent a few days in Chicago recently. He is interested in new and improved methods of burning.

The Link-Belt Company announces the opening of an office in Detroit, Mich., for the handling of its Link-Belt silent chain business and will be represented by L. W. Longan. The offices are in the Dime Bank Building.

The F. H. Wolf Brick Company, of Detroit, Mich., reports business as fairly good. Brick are selling as fast as made, which is about 33,000 brick per day. This will be increased to 100,000 by May 15 when the season opens in full.

The Grand Rapids (Mich.) Brick Company, of which William J. Clark is manager, announces that it is now manufacturing hollow tile, hollow brick and common brick, according to government tests. Its argument to local contractors is "Patronize Home Industry."

Orin A. Kingsley, recently elected Mayor of Grand Ledge, Mich., is believed to be the youngest in the State occupying such a position. He is only 24 years old, Republican, and besides being Mayor is office manager of the Grand Ledge factory of the American Sewer Pipe Company.

The McDonald Coal & Brick Company, of Detroit, Mich., say that business is improving, although it is yet below the record of last year, and that the demand for all building materials is on the rise. The fact cannot be denied that hollow tile is "cutting in" on brick, especially on inside walls, where kiln run brick was formerly used. This brings up the problem of what to do with the kiln-run brick, and about the only solution of the question seems to be in reburning.

Alex. Zagelmeyer, who died in March at his residence in Detroit, Mich., was interested in the organization of the Michigan Vitrified Brick Company, and just previous to his death was negotiating for the establishment of a brick plant in Dearborn, with a capacity of 100,000 brick per day.

George H. Clippert, of the George H. Clippert Brick Company, is on the committee which will meet Secretary of the Navy Daniels in Toledo on May 7th, and escort him to Detroit where he is scheduled to deliver an address before the members of the Builders and Traders Exchange.

In the April issue, mention was made of the United States Sewer Pipe Company's plant at Bay City, Mich., and it was stated that this concern made terra cotta sewer pipe, etc. This was in error, as the company mentioned manufactures corrugated iron pipe for culverts and is not related, in any way, to the great Clay family.

The United States Circuit Court of Appeals, sitting at Cincinnati, Ohio, has handed down an opinion disallowing the claim of Thomas W. Newton of $3,400 against the bankrupt estate of the National Pressed Brick Company, of Detroit, Mich. The court took the ground that inasmuch as Newton had participated in the management of the company's affairs as a stockholder, he had no provable claim against it as a creditor, the holding of the lower court and of the referee in bankruptcy to this effect being sustained.

MINNESOTA

L. G. Rose of the Minneapolis Clay Brick Company of Minneapolis, Minn., was in Chicago recently and states that his company is going to install a modern brick plant.

S. W. Vance, proprietor of the Crookston Brick and Tile Company, of Crookston, Minn., spent a few weeks in Chicago during April. He was looking up new improvements for his yard.

MISSOURI

The Howard County Coal Company, of Howard, Mo., will erect a $25,000 brickmaking plant on part of its property.

F. A. Griffith, (or Griffin) of Rich Hill, Mo., is reported to be in the market for machinery for a brick and tile plant, to be erected at Sedalia, Mo.

Officers of the W. S. Dickey Clay Manufacturing Company, of Kansas City, Mo., have received word that John R. French, general manager of the company's plant in Mexico City, escaped from that center of Mexican troubles without injury. While the Mexican Sewer Pipe Company (as the Mexico plant is designated) closed down several months ago, Mr. French remained on the ground until recently. The situation became so critical, however, that he left for Vera Cruz, and arrived there safely with his wife. Much concern was felt for his safety, until Frederick L. Dickey, general manager in Kansas City, received word that all was well.

NEBRASKA

A raise in pay to begin May 1st, from 70 to 75 cents per hour is being asked by bricklayers in Omaha, Neb. Contractors have had several conferences with the representatives of the union and base their objections to the raise on the poor prospects for building this season. There are 250 to 300 brick layers in the union asking this raise, but at present there is no indication of what action will be taken if the raise is refused.

Let a Cooling Kiln Dry Your Wares

USE ALL YOUR WASTE HEAT

¶ Put the exhaust steam from your power plant to work, call on your boiler gases to help. One dollar saved in your drying means two dollars gained in your profits.

¶ Americans waste more than they use — they have failed to take advantage of dollars that go up in smoke — the ungathered profits that are wheeled into the dump, and the brickmaker is no exception.

¶ Why build a fire to dry your brick when you have one under your boiler and in your kiln?

Sturtevant
(REG. U. S. PAT. OFF.)
Drying System

¶ This method of drying is a scientific method and it has as its basic principal — efficiency.

¶ Air is drawn through the cooling kiln — is mixed with the air outside and is used in the dryer.

¶ Anything more simple — anything more economical?

Sturtevant
(REG. U. S. PAT. OFF.)
Mechanical Draft System

¶ By the use of this auxiliary system your dryer efficiency is increased, a better product produced and dollars go into your pocket that once got lost in the dryer.

¶ The manipulation of the draft and the application of the heated air is what makes perfect ware.

¶ The Sturtevant System lends itself to positive control.

¶ The most tender clay may be handled with the delicacy it demands.

¶ The toughest clay may be rushed through at lightning speed.

¶ And the Sturtevant, with its fans, engines, heater coils, cars and other accessroies, costs no more than other dryers which have none of these features.

¶ The purchaser buys apparatus — not royalties.

We have a little book — **Bulletin 202-S**, which tells all about waste heat drying and the why and the how of it. We will be glad to send you a copy for the asking.

WHEN YOU WRITE TELL US THESE THINGS:

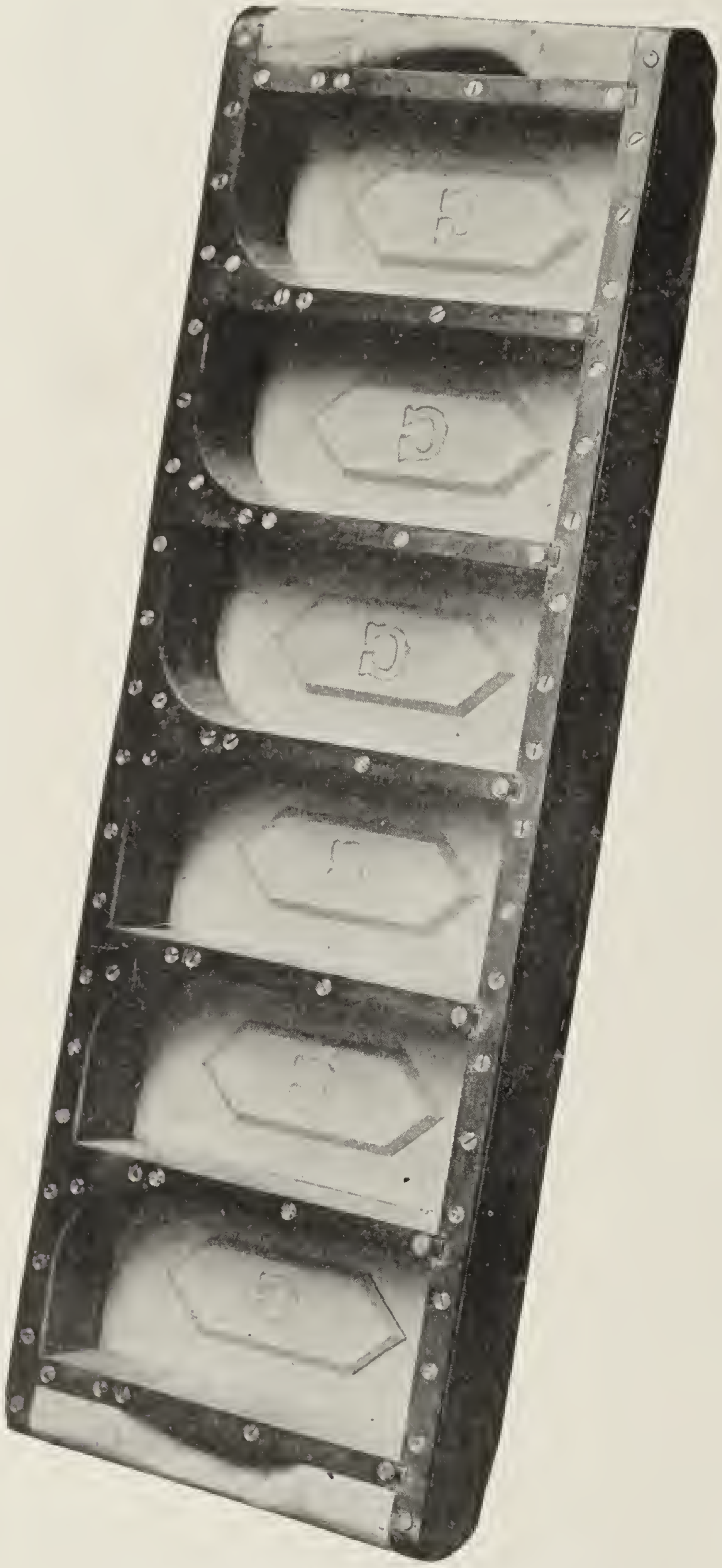
What is your product? What sort of process do you use — stiff mud; or soft mud; shale or fire clay; plastic or open clay? What is your product used for — if brick state whether end or side cut. What is your total output per day? How many hours per day will your drier run? How much water has to be dried out per hour? Is your material sensitive to heat or air? What kind of kiln do you use — how much time is consumed in burning? Have you exhaust steam — how much and for how long a time? What is number of boilers — size — steam pressure? What kind of coal used — what is cost per ton?

B. F. Sturtevant Company
Hyde Park, Boston, Massachusetts
AND ALL PRINCIPAL CITIES OF THE WORLD

BRICK & CLAY RECORD

Machine and Hand Brick Moulds

of Every Description



Write for Detailed Description and Prices

The G. B. Mentz Co.

America's Foremost Mould Makers

Wallkill, N. Y.

NEW JERSEY

The New Jersey Tile and Realty Company of Camden, N. J., has been incorporated, with a capital of $100,000. Charles S. King, of Stratford, N. J., is interested.

The August Reeves Company, of Maple Shade, N. J., has been operating nearly fifteen years, and has an annual output of more than 10,000,000 common brick.

The Hugh Hatch Brick Company of Delair, N. J., has an annual output of 10,000,000 brick. This company has been in operation nearly forty years.

A. H. W. Johnson, late president of the Pulsometer Steam Pump Company, died March 16, 1914, in the fifty-second year of his age. He was born in Hudson City, now Jersey City Heights, N. J., was a graduate of Stephens Tech., (Class of '82) and had been connected with the Pulsometer Steam Pump Company twenty-eight years as its president. He was a yachtsman of marked ability, and his loss will be keenly felt in that field, as well as in the business world. He was a man of sterling integrity, high business ideals and remarkable tenacity of purpose. He applied these attributes to the conduct of the company with which he was identified for so many years, and much of its success was due to his efforts.

NEW MEXICO

The New Mexico Fire Brick Company, with works and head offices at Santa Fe, N. M., is planning extensive enlargements in its plant. The capital stock of the company will be increased from $50,000 to $100,000 in order to provide for the increased plant.

NEW YORK

S. Sweet, 540 Manhattan Avenue, New York, N. Y., wants information and catalogues on hollow block, sewer pipe and tile machinery.

The Atlantic Terra Cotta Company, 1170 Broadway, New York, has declared a quarterly dividend of one per cent on its preferred stock, payable April 30, to stock of record April 23.

The Lincoln Paving Block Company of Corning, N. Y., has been incorporated with a capital of $1,000, which will be increased shortly. The incorporators are W. L. David, C. H. Gale, Ralph Burroughs, Gardner Abbott and R. C. Hyatt.

I. K. Bernstein, of Ithaca, N. Y., has taken over the East Ithaca Brick Yard, and will operate it on common red building brick. This yard uses the soft mud process, using Henry Martin machinery and a Williams patent crusher. General repairs are being made in the sheds and the buildings and some new machinery is being added, as well as three new up-draft kilns. The capacity will be about 30,000.

NORTH CAROLINA

A new brick plant at Johnsonville, N. C., is fast nearing completion. The owners are McQueen and Haselden.

H. Weil & Bros., of Goldsboro, N. C., want information regarding a machine for disintegrating and pulverizing fire clay. Their clay is clear of any rocks.

NOVA SCOTIA

Standard Clay Products, Ltd., of New Glascow, Nova Scotia, was destroyed by fire on March 12th, the loss being approximated at $60,000.

OHIO

The Logan Pottery Company, of Logan, Ohio, has increased its capitalization from $15,000 to $100,000.

E. B. Woods, cashier of the Canal Winchester (Ohio) Bank, has bought in the plant of the Winchester Brick

& Tile Co. The property brought $7,334—two-thirds of its appraised valuation.

The Auglaize Tile Company of New Bremen, Ohio, will build an addition to its factory.

At McArthur, Ohio, the proposition of the McArthur Brick Company to install an electric plant for street lighting has been accepted by the city council. The purpose is to furnish electricity at 6 cents per K. W.

It is claimed that with the new addition to its plant in Youngstown, Ohio, the Bessemer Limestone Company will have the largest brick manufacturing establishment in the world.

The Marietta Shale Brick Company, of Marietta, Ohio, has been incorporated with a capitalization of $15,000. The directors are J. E. Flanders, Emily Flanders and E. H. Flanders.

The Kirchner Brick Company was incorporated at Columbus, Ohio, March 10, by Frank Kirchner, J. M. Quill and others. This is the incorporation of the brick plant interests owned by the Kirchners at Fultonham, Ohio.

H. E. Stratton, for a number of years a stockholder in the Stratton Fire Clay Company, of Empire, Ohio, has purchased the Cooper farm at Port Homer, Ohio, and will erect a large modern plant for the manufacture of sewer pipe and fire clay products.

The Citizens Brick Company, of Zaleski, Ohio, has been organized. Dr. A. A. Boal is president, James G. McKibben, vice-president, and J. F. Houser, secretary. The Company will manufacture building and paving brick and mine pottery clay.

The Electric Porcelain plant at New Lexington, O., which has been inactive for some time, is to be placed into immediate operation. The company plans to increase its former capacity, and has already booked $100,000 worth of business from one concern alone.

Frank H. Mason, aged 68, president of the firm of Mason & Son, tile manufacturers at Monroeville, Ohio, was killed April 21, through an accident. His overcoat became caught in the machinery and he was whirled about the shaft. He is survived by his son, Harry, who is his partner in the business.

The Diehl brick and tile plant at Defiance, Ohio, which was practically wiped out of existence by the floods of 1913, has been rebuilt and new machinery installed. The plant will soon be in operation, turning out drain tile, building blocks and brick. It will be operated by electric power.

Edward Barry, manager of the South Fork Fire Brick Company, of South Fork, Ohio, has taken temporary offices in the building occupied by the South Fork "Record." He has plans in hand for the complete rebuilding of the plant which was damaged, it is reported, some $20,000 worth on March 19.

The business men of the village of Corning, Ohio, are endeavoring to raise a bonus of $20,000 for the Lincoln Paving Brick Company, on condition that it will increase the output of its plant to 75,000 daily. The increased capacity will, it is claimed, necessitate the expenditure of $20,000 for new equipment.

The McArthur Brick Company of McArthur, Ohio, has decided to erect a power house separate from the present machinery building and add two more boilers and one 300-horsepower engine and generator. These additions will give increased power to drill the shale and sand with electricity, also to run the crusher at the sand plant. Work is to begin as soon as the weather permits.

DODGE

"Eureka"
Water Softener

Keeps
Boilers Clean

Tons of Coal Wasted Because of Scale

According to Editor Lorimer of the Saturday Evening Post: "A sixteenth of an inch of scale in a boiler means a loss of twenty-five per cent. in efficiency, and the waste from boiler scale in locomotives alone is estimated at fifteen million tons of coal a year." Think of it, *more than the entire coal production of Indiana!*

What is said about locomotive boilers is equally true of all boilers in which steam is made. Every day that you furnish your boiler with hard and impure water, every day you are *throwing away coal—throwing away money.*

Hard and impure feed water means scale; scale means bagged and burnt tubes, leaky boilers, possible explosions, cleaning expense, extensive repairs, loss of fuel—a drain on your profits. Soft water is boiler salvation. In our *Eureka Automatic Water Softening and Purifying System* you can put your water supply on the safe side for only a penny or two per thousand gallons. Manufacturers who are using it report a saving in fuel of from 10 to 20 per cent. and in addition the elimination of worry and trouble. The machine requires only a half hour's attention each day, and there is practically little cost attached after installation.

We have a beautiful wall chart illustrating the Eureka method by colors—you may have one for the asking. Put your request in the mail, now.

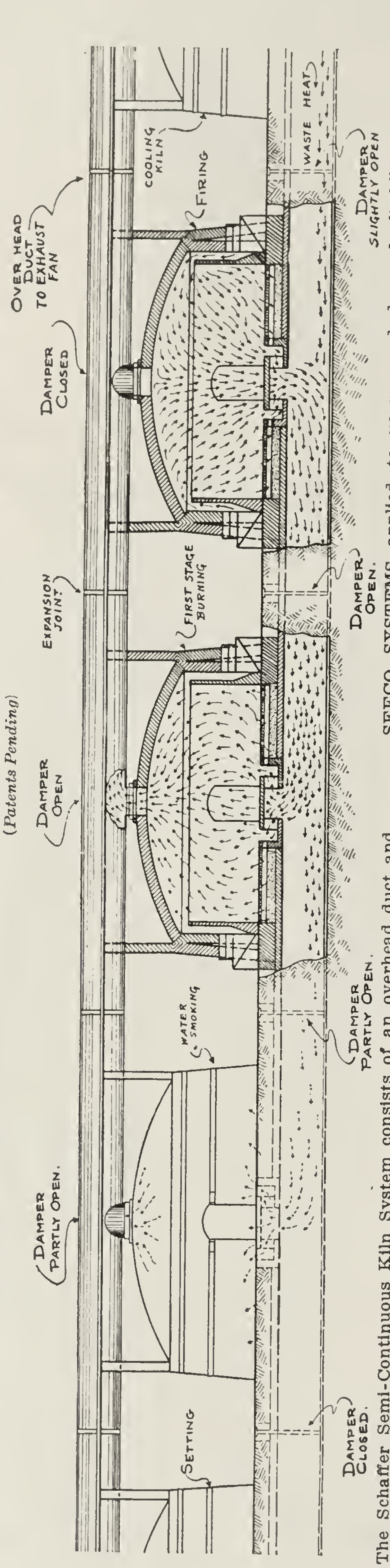
Dodge Manufacturing Company

Exclusive Builder of the Eureka Water Softening System
Office and Works: MISHAWAKA, INDIANA

Philadelphia, 315 Arch St.
Boston, 137-139 Purchase St.
Cincinnati, 126-128 W. Third St.
Atlanta, 28 S. Forsyth St.
Pittsburgh, 337 Second Avenue
Chicago, 308-314 S. Clinton St.
New York, 21 Murray St.
Minneapolis, 100 N. Third St.
Indianapolis, Merchants Bk. Bldg.
St. Louis, 408 N. Fourth St.

THE SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

(Patents Pending)



The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

Pottery Notes

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

MOLD-MAKERS have completed a vast amount of work at the Kittanning pottery and expect to have the preliminary part of their work finished soon. The work of making clay started April 3, and the making of ware April 6. The kiln hands reported for duty four days later, and then followed the brushers and decorators. By May 10 the pottery will be running full in all departments.

At a meeting of the board of directors of the Oxford Pottery Co., at Cambridge, O., the contract for erecting the three kilns was awarded to Gamble & Bryan, of East Liverpool, O. Work will be started as soon as possible. Handshy & Son, of Zanesville, have the contract for the building.

From Crooksville, O., come reports to the effect that many of the stoneware potteries there have been compelled to close because of large stocks and lack of new business. It is the first note of trouble in the domestic pottery industry and caused surprise when it became known. The Star and the big plants of the A. E. Hull Co., are operating with a good run of business in front of them. These firms are so well known that their operations are scattered in all parts of the country and they seldom suffer from lack of business except when stagnation is general.

The National Brotherhood of Operative Potters has decided to hold its annual convention at Atlantic City beginning July 3. Western delegates will make the journey over the Baltimore & Ohio because excursion rates will be available at that time. The convention, while always important to the pottery industry, will this year have no special feature of interest to the domestic trade. The wage scale for two years was decided on at the New York conference last Fall, and there has since been nothing in the situation to indicate that there will be any change in the immediate future.

Working conditions are satisfactory in the main, and while some of the Brotherhood delegates always have plans for the betterment of the workers, they seldom propose anything of a radical nature. It is a well known fact that the manufacturing potters are ahead of the times in regard to welfare work in the potteries, many of them holding views that allow them to give their employes the very best that money can buy.

All general ware potteries in the United States are working as they have never worked before and every skilled potter who wants a job can have it at the highest wages ever paid to any potters anywhere on the face of the earth. This happy condition is not because the administration compelled a revision of the tariff laws that cut the duty on pottery, but rather in spite of such revision.

The Underwood law has been in operation for six months and large quantities of ware were ready for the market at the principal ports of entry, when the bill became operative. But they had little effect upon the market. The people continued to buy domestic ware. Since then there has been much buying from the importer but these goods have not been delivered nor will they be for several months. What influence they will have is yet to be determined. But if the story of the first six months of the Underwood law is to be repeated, the industry need have no immediate fears. Good ware, marketed at a price that will permit of good wages with a fair margin of profit, seems to be the policy of those enterprising manufacturers who make up the American potting trade.

Will china clay cost the manufacturer more in the future? Although new works have come into existence during the last few years, the demand is equal to the supply. Just now there is quite a flutter in china clay producing circles, owing to the likelihood of a greatly extended demand on the part of soap manufacturers. Experiments lately conducted go to show that china clay is an excellent substitute for animal fats, and that its use in the manufacture of soap will save 80 per cent in the cost of production.

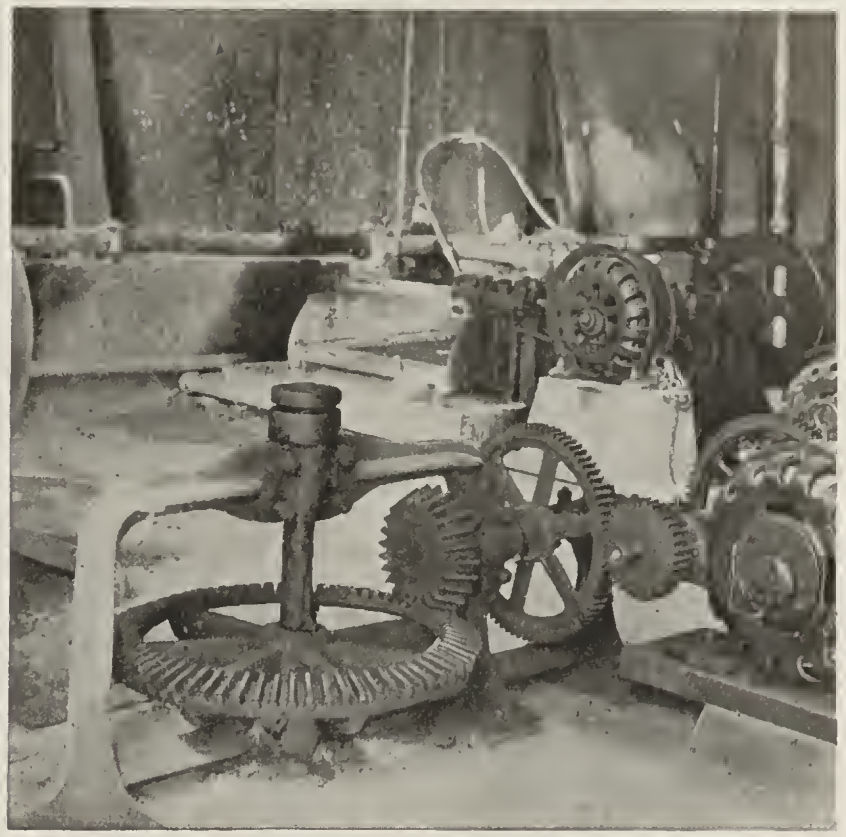
The plan of the health committee of the National Brotherhood of Operative Potters for the establishment of a sanatorium in the east this year will be put up to the convention at the annual session in Atlantic City the week of July 3, instead of taking a referendum vote on the proposition, as first proposed.

The committee, after careful investigation, recommended to the trade the purchase of a farm of 150 acres in Hunterdon County for $16,500 and the expenditure of $3,500 to stock the tract. The owner of the farm, which is located a few miles from Lambertville, gave the health committee until April 1 to decide, and the deal not being closed on that date, he withdrew the property from the market.

The committee, however, has several other sites under consideration, and which are believed to be equally as adaptable and healthful for a sanatorium and rest place as the Hunterdon County mountain farm. The proposition of establishing a place where members who are convalescent from tuberculosis or other diseases may earn some money and gather strength finds favor with the members, and it is the opinion that convention will sanction the plan.

Plans of the Consolidated Manufacturing Co., of Chester, W. Va. incorporated last fall to erect a pottery at Grafton, W. Va., and have it in operation not later than June 1 of this year will not be carried out, although it is expected to have the pottery running by the middle of August. Contractors were delayed by the severity of the weather and there was additional delay because of scarcity of material. But the temperature has been of a quality that permitted kilns to be erected and the material is at hand so that work is being rushed with all possible speed. The pottery will make a general line of ware.

While the committee of capitalists from Clarksburg, W. Va., have been looking over the country for a pottery to locate in that city or investigating men who are willing to build and operate a pottery in that enterprising town, it is understood that no decision has been reached. It is understood that the Clarksburg men have a good argument in the cheap fuel that region affords a factory, while the shipping facilities are of the best. The question of labor, they say, can be secured there as well as in any other industrial community, while the city is an ideal home town with all the advantages of good schools and churches.



Gearing for Shifters and Agitators.

Gears
for
Brick-Making Machinery

Nuttall Gears meet the severe conditions imposed upon gearing in the Brick and Clay Industry, and give

Long Life
and
Reliable Operation

A correct gear to meet your most exacting requirements can be supplied.

Forward the attached Coupon.
Address Dept. B.

Nuttall
Pittsburgh

World's
Largest Gear Works

R.D.
Nuttall
Company
Pittsburgh, Pa.

We would like to know more about your gears for Brick and Clay Machinery. (CHECK)
Our service is normal
Our service is severe
Address.............................
....

The
Gerlock Iron
Dumping Table

Reduces green Brick Loss.

Increases Output.

Hundreds in use.
Satisfaction guaranteed.

Descriptive circular and prices furnished on request.

H. W. GERLOCK
HUNTINGDON - PA.

It is said that an Eastern Ohio Pottery Company will locate in Clarksburg before the year ends.

Ransbottom Bros., Pottery Co., of Roseville, are making plans for the erection of a good-sized stoneware plant on the exposition grounds at San Francisco to demonstrate to the millions of people who will attend the big Panama-Pacific fair, and who have never been inside of a pottery plant. It is expected that at least 75 experienced employes from the plant will be taken in order to operate it.

Phenomenal activity of domestic potteries continues, and new business is almost as abundant as that which the salesmen found when they took to the road soon after the first of the year. Pottery managers are working hard to fill orders and take care of the new business that comes in every mail, and so many of them are keeping pace with the situation that little complaint is heard concerning the delivery of ware. This activity is not confined to any particular branch of the industry, but all are affected except possibly sanitary ware, and that is controlled largely by the state of the building trades. Tableware potteries have the situation well in hand, and in spite of the large amount of business in sight they are not letting up in their campaign for new business.

Freight Tariffs

SHIPPERS in the Pittsburgh, Pa., district do not appear to be especially concerned over the proposed ruling by the Trunk Line railroads to withdraw the mixed carlot privilege whereunder a composite load is charged for at carlot rates based on the rate of the highest class article composing it. Under present arrangements a car may be loaded with a number of different classes of freight, all of them low, or almost entirely with a low class commodity, and with a very small proportion of a high class article, and thereby secure the carlot rate of the latter, which still effects a material saving in the freight charge. Under the arrangement proposed, all cars must be loaded with one class of freight, otherwise transportation charges will be made at less than carlot rates, which will insure to the advantage of the carrier. Local shippers will be effected to a great extent by the new ruling if it is put in force, generally, and it has in some instances.

One of our subscribers calls our attention to the rate published in our Feb. 3 issue, on clay and clay products, from Lock Haven, Pa., to Sault Ste. Marie, Ont., asking what railroad issues this tariff and the number. For the benefit of others who may be interested, we print the answer which we sent him by mail—that the tariff in question is P. R. R.—I. C. C. G. O. 5379.

An attempt May 8 will be made before the Special Examiner of the Interstate Commerce Commission at Kansas City, Mo., by E. J. McVann, Traffic Bureau manager at Omaha, to prevent the raising of brick rates from ten to twelve and one-half cents a hundred pounds. Mr. McVann will represent the Gas Belt Brick Manufacturers of Kansas. The C. W. Hull Company of Omaha, Neb., handles the Kansas brick and is a party to the action.

The duties of the Traffic Manager, as outlined by W. N.

Agnew in "The Industrial Traffic Department," a treatise prepared primarily for the Interstate Commerce and Railway Traffic students of the LaSalle Extension University, are as follows: quoting of rates, routing of consignments, supervision of all shipping and receiving, taking complete responsibility for incoming and outgoing goods, and supervision of all work in connection with his office. Then the author goes on to tell "how" these duties may best be carried out. Some of the topics discussed in the work are Files and Furniture, Publications, Records, Tariffs, Rates, Classification, Routing, Claims, Tracers, Accounting, and Demurrage. Adequate test questions are provided. This little treatise is so interesting and practical that it will fill a long-felt want.

Changes in freight tariffs that affect clay and clay products and that have gone into effect since our last issue, are as follows:

From Eastern Points.

From Blandon, Fleetwood, Mertztown and Shamrock, Pa., clay, to Washington, D. C., $1.75 per net ton.

From Bradford, Johnsonburg and Lewis Run, Pa., and Olean, N. Y., brick and clay products, to Fairdawn, Ohio, $1.45 per net ton.

From Embrun and Russell, Ont., brick, to Massena Springs, N. Y., 7½c per cwt.

From Woodstock, N. B., brick, to Houlton, Me., 3½c per cwt.; to Fort Fairfield, Me., 6c per cwt.; to Caribou, Me., 6½c per cwt.; to Presque Isle, Me., 7c per cwt.

From Southern Points.

From Danville, Va., brick, common or vitrified, to Lula, Gillsville, Maysville, Nicholson, Centre and Athens, Ga., 12c per cwt.

From Danville, Va., fire brick, to Lula, Gillsville, Maysville, Nicholson, Centre and Athens, Ga., 13c per cwt.

From Graves Mines, Ala., brick, to East Spartanburg, S. C., 11c per cwt.

From Gulf Ports (imported, via shipside, Gulf Ports), brick and clay products, to Cincinnati, Ohio, and group, 14c per cwt.; to Indianapolis, Ind., and group, 15c per cwt.; to Chicago, Ill., and Louisville, Ky., and rate points, 17c per cwt.; to St. Louis, Mo., and group, 21c per cwt.

From Leaksville Junction, N. C., brick, common or vitrified, to Lula, Gillsville, Maysville, Nicholson, Centre and Athens, Ga., 13c per cwt.

From Leaksville Junction, N. C., fire brick, to Lula, Gillsville, Maysville, Nicholsonfi Centre and Athens, Ga., 14c per cwt.

From Middle West Points.

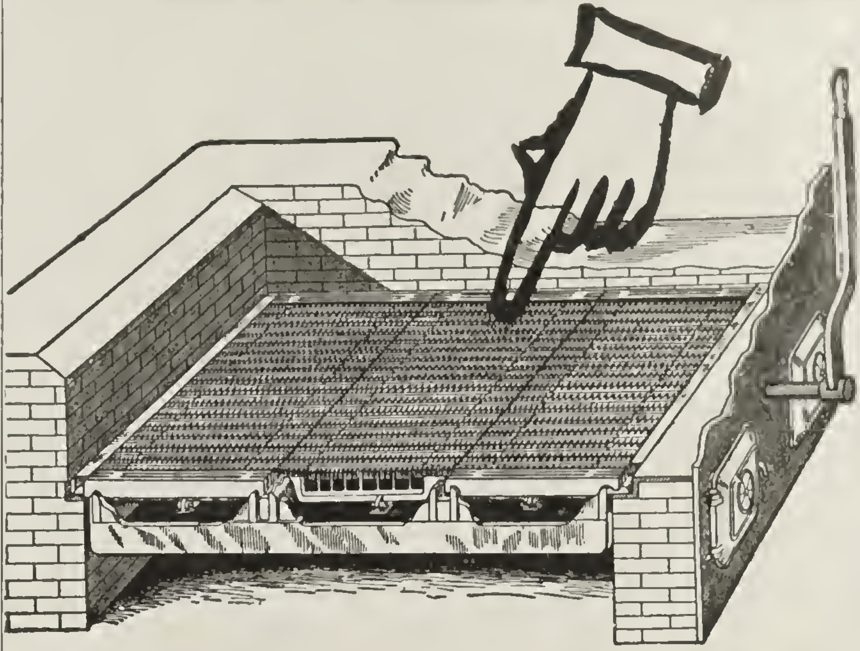
From Edwardsville Junction and Alton, Ill., brick, to Wellsville, Mo., $1.40 per net ton.

From Parrel, Ohio, fire brick, to Keegan, Mo., 32½c per cwt.

From Western Points

From Clear Lake Junction, Mason City and Rockford, Iowa, brick, to Clarks Grove, Albert Lea, Ellendale, Hope, Owatanna, Medford, Faribault, Comus, Erin, Dundas, Northfield, Castle Rock, Farmington, Rosemont, Invergrove, South St. Paul, Newport, St. Paul and Minnesota Transfer, Minn., 5c per cwt.

From Clear Lake Junction, Mason City and Rockford, Iowa, drain tile, to Clarks Grove, Albert Lea, Ellendale, Hope, Owatanna, Medford, Faribault, Comus, Erin, Dundas, Northfield, Castle Rock, Farmington, Rosemont, Invergrove, South St. Paul, Newport, St. Paul and Minnesota Transfer, Minn., 6c per cwt.



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

The Martin Grate Co.
347 S. Dearborn St., Chicago, Ill.

$5 for an Idea—

You Can Write it in Twenty Words

Do you know some short cut to manufacturing efficiency? Have you devised a simple contrivance that lessens labor and improves your product? Have you a new wrinkle that helps your men or your fellow workers or that brings a profit to your employer?

If you have a suggestion of any sort that would be of benefit to a fellow workman, write it out in twenty words or more—one hundred should be ample, and send it to "Brick and Clay Record." We want it.

Brick and Clay Record Pays for Suggestions

We pay $1 for every suggestion sent us and used in "The Superintendent's" Department, and the best suggestion receives a special prize of $5 each issue.

Have you a way of doing something that is different from the other fellow? Send it to us.

Have you a device that adds to the efficiency of your machine? Send it to us.

Have you a suggestion that improves the quality of your wares? Send it to us.

We Pay $1 for Every Suggestion That We Print

We are striving to make "The Superintendent's" Department of great practical value to our readers and we want you to help us. This department is intended as a symposium of ideas. It should bristle with useful tips and suggestions. Read it yourself. You may receive some little idea thereby that will be of great assistance to you. In exchange for the good that you receive contribute something for your fellow workmen.

Write your suggestions on one side of the paper—in ink and the shorter the better. Address it to "The Superintendent, 'Brick and Clay Record.'" Be sure to sign your name and give your address, so we will know where to send the check.

Brick and Clay Record
CHICAGO

From Des Moines, Iowa, brick, to Clarks Grove, Albert Lea, Ellendale, Hope, Owatanna, Medford, Faribault, Comus, Erin, Dundas, Northfield, Castle Rock, Farmington, Rosemont, Invergrove, South St. Paul, Newport, St. Paul and Minnesota Transfer, Minn., 8c per cwt.

From Des Moines, Iowa, drain tile, to Clarks Grove, Albert Lea, Ellendale, Hope, Owatanna, Medford, Faribault, Comus, Erin, Dundas, Northfield, Castle Rock, Farmington, Rosemont, Invergrove, South St. Paul, Newport, St. Paul and Minnesota Transfer, Minn., 9c per cwt.

From Des Moines, Iowa, brick, to Stein, Hills, Bruce, Benclare, Rowena and East Sioux Falls, S. D., 8c per cwt.

From Des Moines, Iowa, drain tile, to Stein, Hills, Bruce, Benclare, Rowena and East Sioux Falls, S. D., 9c per cwt.

From Kansas City, Mo., and rate points, brick, fire, pressed or shaped, to Oak Hill, La., 22c per cwt; to Baker Hurgess and Hunter, La., 23c per cwt.

From Mason City, Iowa, brick (except bath and enameled) and articles taking the same rates, to Kansas City, Sugar Creek and St. Joseph, Mo., and to Atchison and Leavenworth, Kas., 9½c per cwt. This rate is good in either direction.

From Minneapolis and St. Paul, Minn., and group, enameled brick, to Grand Rapids, Oshkosh, Fond-du-Lac, Rhinelander and Menomonie, Wis., 14c per cwt.

From Menomonie and Tramway, Wis., brick (except bath and enameled), to North Kansas City, Kas., Leavenworth, Kas., Kansas City, Mo., St. Joseph, Mo., and Nebraska City, Neb., 12½c per cwt.

From Ogden, Salt Lake City and Wilford, Utah, and rate points, brick, fire clay and articles taking same rates, to McGill and East Ely, Nev., 15c per cwt.

From Parsons, Kas., brick, to Lincoln, Neb., 9c per cwt.

From St. Louis, Mo., brick, fire, pressed, or shaped, to Oak Hill, La., 27c per cwt.; to Baker Hurgess and Hunter, La., 28c per cwt.

From Topeka, Kas., brick, to Emporia, Kas., 5c per cwt.

California Protest Against "Jerry-built" Roads.

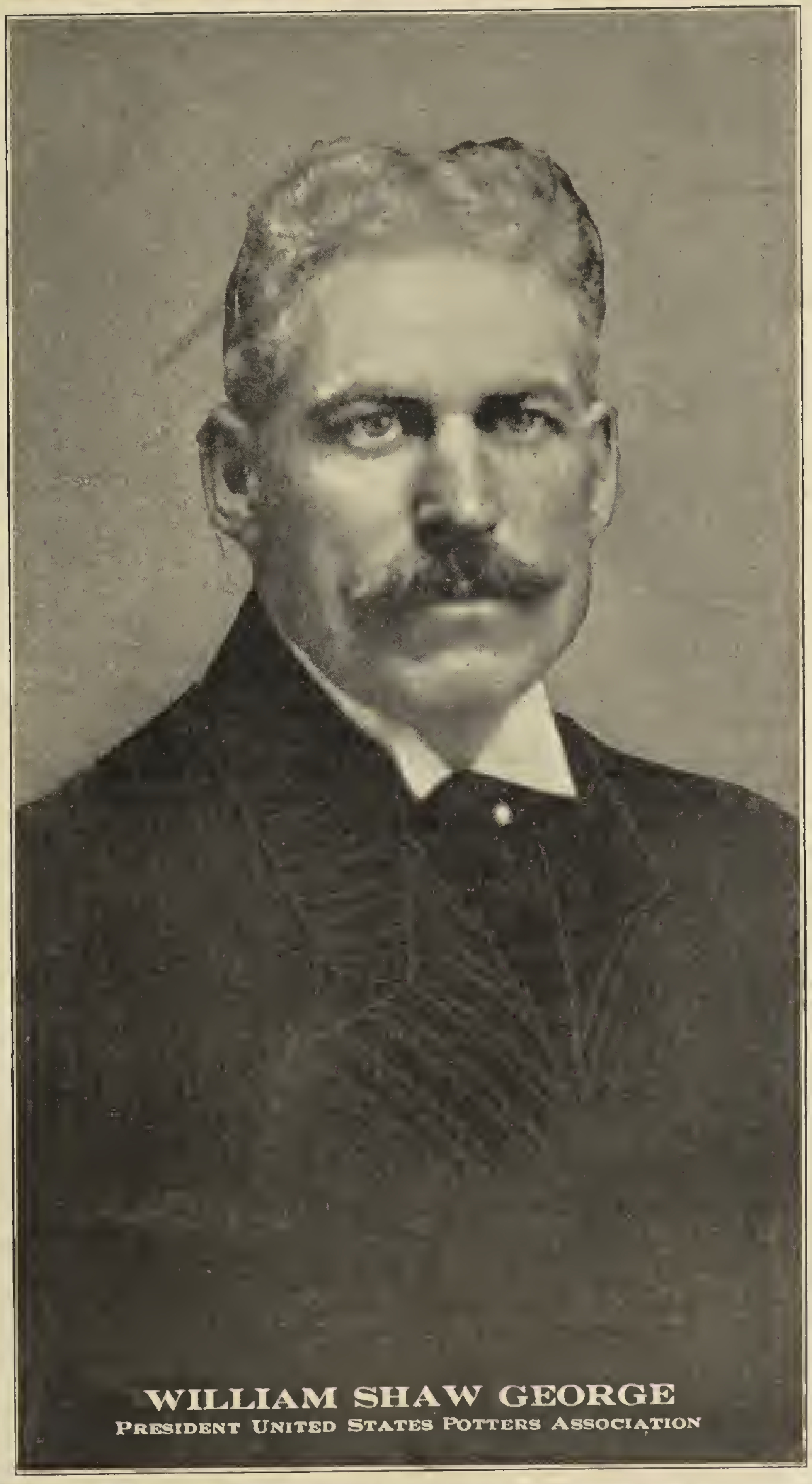
Unless it was the deliberate purpose of the Highway Commission to "play politics" with certain communities by building roads quickly, its course would have been to select some locality having heavy traffic and to build test sections of the different materials and laid under the different specifications, says the San Francisco (Cal.) "Chronicle." The people may as well understand now, as later, that the greater part of their $18,000,000 is being wasted—worse than wasted, in fact—by reason of the exorbitant and unnecessary cost of repairs which must be done on the jerry-built roads.

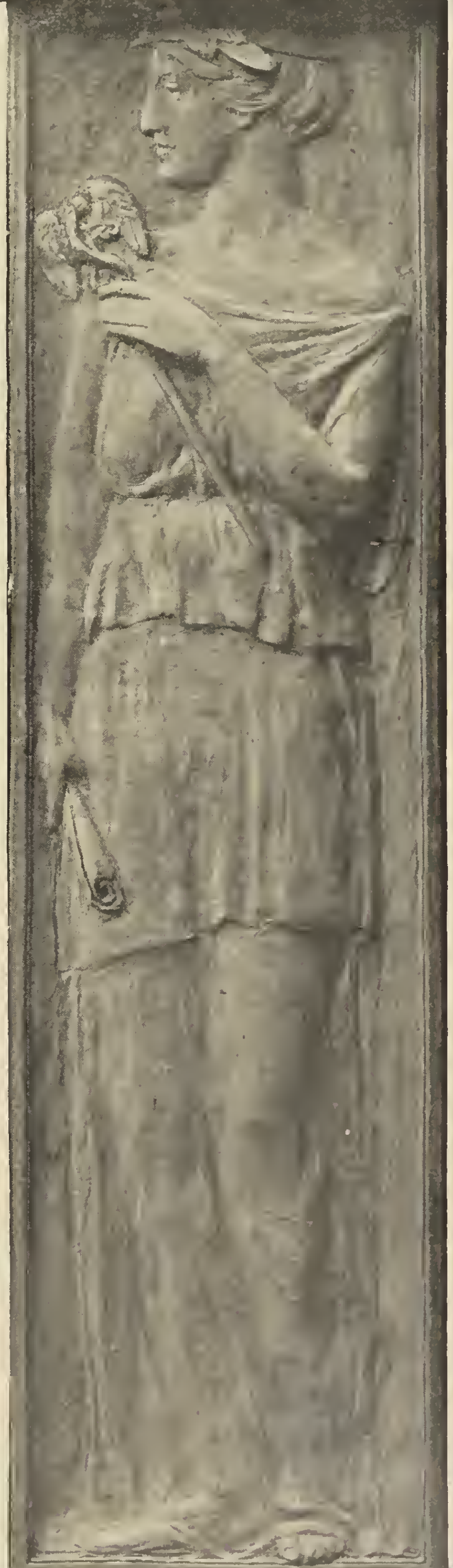
The question of repairs—which will go on forever—is of tenfold more importance than the original cost.

Asphalt is an unsatisfactory surfacing for roads which are to receive heavy travel. It gives no hold to the horses' feet, there is great danger of skidding by automobiles, and under the fierce heat of our interior Summers it softens and rolls up in front of the wheels. When laid over a four-inch foundation of concrete it means that everything above the earth must soon be replaced. Ordinary common sense, therefore, suggests that every endeavor should be made to test out everything which promises better results. Among these materials is vitrified brick, which is said to make the most durable of roads.

IN THIS NUMBER: PERMANENT FARM BUILDINGS
BY PROF. J. B. DAVIDSON

BRICK and CLAY RECORD


WILLIAM SHAW GEORGE
PRESIDENT UNITED STATES POTTERS ASSOCIATION



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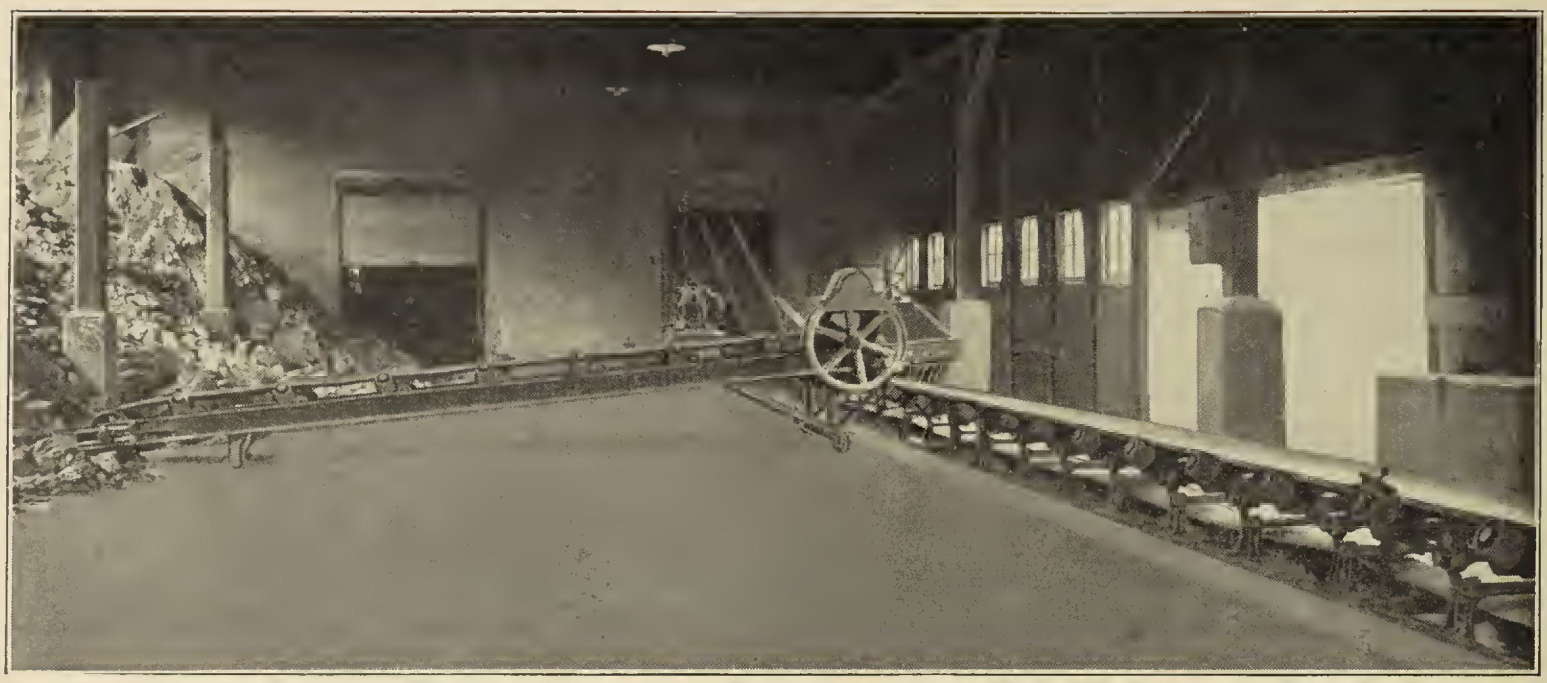
"Brick and Clay Record" Has Double the Paid Circulation of Any Other Clay Journal Published

WELLER-MADE

WEATHER YOUR CLAY



Two things are Absolutely Free on every Clayworking plant.

They are Air and Weather.

The first is used as freely as it is given. The second is generally blamed for Bad Burns.

The first Works for the manufacturer in the boilers, the driers and the kilns.

The second Ought to work for him before his clay reaches the pug-mill.

As coal loses its potential heat units through exposure, clay gains in its potential ware-making qualities.

Coal loses more during the first day after it leaves the mine than it does the second. It takes many days—even months, before it becomes almost useless for heat producing.

So clay gains more, the first day after it is mined, than it does the second day, and often takes months before it reaches the point where further weathering will not alter it.

The point is—use your coal as soon after it leaves the mine as is humanly possible.

And—expose your clay long enough to eliminate the destructive elements, without running up a big expense bill.

A study of your conditions will give you a good idea of how long that period is.

A study of reclaiming and storing systems will determine the amount of the expense bill.

There are several simple and efficient ways of handling clay in and out of storage, and the cost of installation, operation and upkeep is surprisingly small.

Whatever the capacity or product, there is a WELLer MADE equipment that will pay for itself in the improved quality of the ware.

And—by eliminating the chances of shut-downs, through lack of material, increase the output until it Is capacity.

Our engineering department is at your disposal. It has designed similar equipment to the one your plant needs. Some slight alteration to meet your requirements will be made if necessary.

Let Us Work With You and For You

A Postal or a Short Letter Will Bring a Dividend

Weller Manufacturing Company

CHICAGO

New York Office: 50 Church St.

St. Louis Office: 520 Victoria Bldg.

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
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Pittsburgh Office: 310 Kellerman Bldg. Bell 'Phone, Grant 4632

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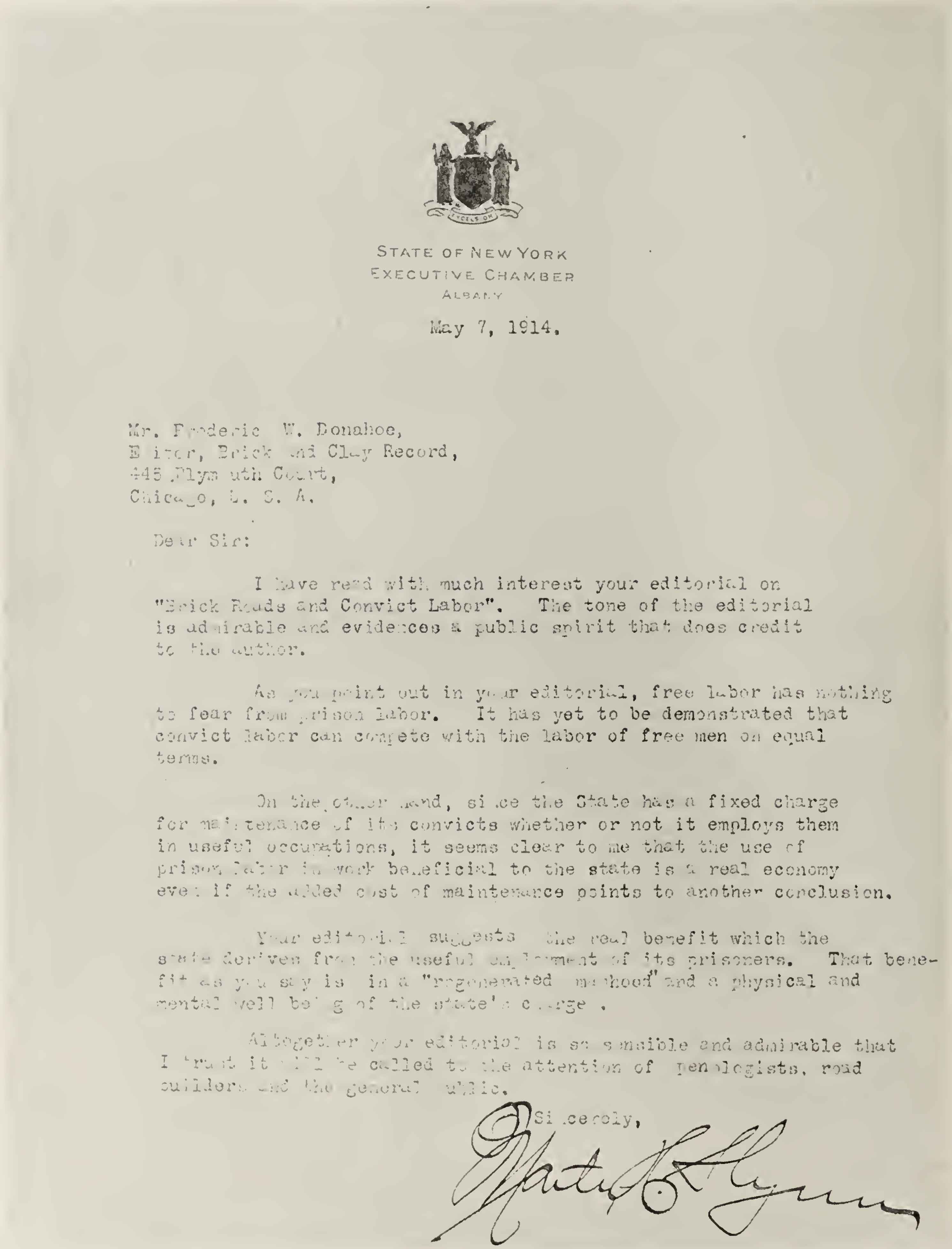
The Editor's Corner

A Department Wherein is Set Apart Comment
and Opinions on Some of the Graver Problems
Confronting the Clayworker and Co-Laborers



STATE OF NEW YORK
EXECUTIVE CHAMBER
ALBANY

May 7, 1914.

Mr. Frederic W. Donahoe,
Editor, Brick and Clay Record,
445 Plymouth Court,
Chicago, U. S. A.

Dear Sir:

I have read with much interest your editorial on "Brick Roads and Convict Labor". The tone of the editorial is admirable and evidences a public spirit that does credit to the author.

As you point out in your editorial, free labor has nothing to fear from prison labor. It has yet to be demonstrated that convict labor can compete with the labor of free men on equal terms.

On the other hand, since the State has a fixed charge for maintenance of its convicts whether or not it employs them in useful occupations, it seems clear to me that the use of prison labor in work beneficial to the state is a real economy even if the added cost of maintenance points to another conclusion.

Your editorial suggests the real benefit which the state derives from the useful employment of its prisoners. That benefit as you say is in a "regenerated manhood" and a physical and mental well being of the state's charge.

Altogether your editorial is so sensible and admirable that I trust it will be called to the attention of penologists, road builders and the general public.

Sincerely,

Martin H. Glynn

The Editor's Corner

IF any doubt existed as to the broader spirit and new light that has come into claycraft, it is dispelled by the support given Governor Glynn's plan to employ prisoners in the Elmira reformatory in making brick for the roads of the Empire State. Almost without exception, the letters that have been sent to "Brick and Clay Record" show that, unique among industries, brickmakers do not fear the competition of prison labor, or, where they doubt its wisdom from an economic view, see the humanitarian side of the question, and, with a higher patriotism than many men in other lines, are willing to run the chance for the sake of the good that society will reap from the experiment.

Charles J. Deckman, president of the National Paving Brick Manufacturers' Association has written that, in his personal opinion, if the State will operate a brick plant on strictly modern, business principles, and required the same qualifications of the product as it would demand in the output of a privately owned plant that was selling to the State, there could be no logical objection to the plan of employing convict labor in the manufacture of paving block.

Eben Rodgers, President of the National Brick Manufacturers' Association and Secretary of the Alton (Ill.) Brick Company, writes:

"We are not particularly concerned over the proposition to make paving brick with convict labor. We feel quite sure that this will not prove to be either practical or profitable on account of the lack of experienced labor that will be available and the continuous changes that will necessarily have to be made. We do feel, however, that through this discussion there may develop a practical method of using convict labor in constructing vitrified brick highways. This feature worked out will be most valuable both to the State and the unfortunate convict."

C. E. Foster, of Bradford, Pa., President of the Eastern Paving Brick Manufacturers' Association, wrote this journal under date of April 23rd, saying in part:

"I think that the Governor's article concerning the use of brick is in the whole very valuable and that he has stated many well known and proven facts but it seems evident that he knows very little about brick manufacturing and the technical knowledge required to successfully cope with the conditions surrounding the manufacture of paving brick that will successfully supply the demand for this material on State Highways in New York.

"I believe that more money could be saved the State if the State would adopt the plan of furnishing labor to the contractors at, say twenty-five cents a day. I am very sure that by the time the State has manufactured a large number of culls and worthless brick that it will lose, rather than save money, under Governor Glynn's plan.

"There is another question I have been considering and it is this;—is it right, and not only is it right but is it legal, for the State to place a tax upon us when we incorporate our companies and then force us to pay annual taxes that are quite excessive and then go into direct competition with us to force down our margin of profit and put us out of business?

"It is certain that, if the brick plants are so put out of business by the State, it would lose a large revenue from the companies that were retired.

"However, I do not wish to have you think that we are losing any particular sleep over the Governor's plan so far as its putting us out of business is concerned."

In reply to the above, a letter was written Mr. Foster which said, in part:

"We take our position from the fact that it seems a foregone conclusion that State owned brick plants are coming and that any fight which the brickmaking industry might make would not only prove useless but establish an ill feeling that would do harm for many years to come. On the other hand, as our editorial indicates, we believe it would be much better to see to it that the State owned plants turn out good brick. This, we think, is much more important to the private manufacturer of paving brick than the matter of prison labor competition."

Under date of May 8th Mr. Foster replied saying:

"Since I wrote you my letter under date of the 23rd, I have been in communication with several other manufacturers of paving brick and have changed my opinion in this matter quite completely.

"I am of the opinion now that our best policy is to show a spirit of co-operation with Governor Glynn and to try to bring about as soon as possible a plan for factory tests on paving brick.

"Have you anything to suggest in this connection? Assuring you that I greatly appreciate the spirit of your letter as well as your valued periodical, I am, Yours very truly."

C. C. Barr, president of the Barr Clay Company, of Streator, Ill., treasurer of the National Paving Brick Manufacturers' Association says:

"Our views are not at variance with those expressed in your editorial of May 5th. We believe it is the duty of the State to keep its convicts employed in whatever way seems best for the future good of—first, the man and—second, the State. If it is decided that a reasonable number of them can be employed to good advantage in making paving brick for State roads, we can see no valid reason why anyone should object."

Since the institution of a brickmaking plant at the Elmira (N. Y.) Reformatory would be

The Editor's Corner

apt to affect private manufacturers in New York State even more than those who are at a greater distance, the following letter from John Mahoney, Secretary and Treasurer of the Jamestown (N. Y.) Shale Paving Brick Company, shows a splendid spirit:

"Referring to your editorial of the 5th inst., we are heartily in favor with Governor Glynn's plan to use brick for State Highways. We believe that the amount of brick that can be made by prison labor will not affect the output of any brick plant in this State and the endorsement of brick for State Highways, by the Governor, will increase the demand for brick streets in the cities."

W. P. Whitney, president of the Danville Brick Company, of Danville, Ill., says:

"I commenced talking this ten years ago and am still for it, viewing it from both sides."

If it were not for difference in opinion on matters of great moment, life would be a gray affair, elections would be without incident, sport a farce and marriage a failure. The letter written by A. P. Maurer, manager of sales for the Metropolitan Paving Brick Company, of Canton, Ohio, while it takes up the proposition from a different angle, it says a great deal that is worthy of thought. It follows:

"Answering your request as to our opinion of your editorial on a "State Owned and Operated Paving Brick Factory" published in your issue of May 5th, 1914, there are several reasons why we feel we cannot endorse prison made paving brick. It seems to us as though this is a matter of considerable importance and one with many angles, the outcome of which could hardly be determined without knowing to just what extent it would be developed.

"In order to pass upon a question of such importance, we think there are many details in connection with a matter of this kind that should be known before offering any opinion as to what the result would be. If we had some idea of just how the State of New York intends to operate the plant, the kind of supervision intended and the scope of the plan, we would then be in better position to criticise or make suggestions.

"It looks very much to us that if a State operated a paving brick plant successfully and increased the capacity to a considerable extent, that this plan would then be adopted by numerous other states, that it would represent a certain amount of undesirable competition, and it might be extended beyond prison labor.

"We appreciate that there would be some benefit in useful employment of prisoners, and which is commendable, providing the quantity of paving brick manufactured or the capacity of the plant would be limited, but how can we determine just what it would lead to in case the plan should prove successful and be adopted generally on a large scale. For instance, what effect would it have with our competitors if the State of Ohio was to purchase and operate our factories with prison labor?

"We feel that an endorsement of such a plan on the part of the State, without knowing to a greater extent of the plans or details in connection with it, would be rather embarrassing in case you should have just complaint and criticism later."

Clyde C. Murray, President of the Reynoldsville (Pa.) Brick and Tile Company adds his voice to the chorus of approval, writing:

"We are in receipt of your favor of the 7th inst., calling our attention to the editorial in your issue of the 5th inst. We most heartily indorse the sentiments of your article. The endorsement for paving brick that Governor Glynn gives us is worth too much to the paving brick industry for any of its members to feel that the State owned plants will affect the sale of the product of any one of us. Particularly is this true when we consider the very probable increase in the use of brick that is likely to come as a result of the stand that Governor Glynn has taken."

George E. Prindible, Secretary and Treasurer of the Patton (Pa.) Clay Manufacturing Company writes us as follows:

"We have read with much pleasure the article on paving brick for State roads by Governor Glynn of New York, and we are in hearty accord with his position throughout.

"The profitable employment of convict labor is a distinct value to the public at large, and the brick so made would only increase the amount of paving that would be done both in City and State, by reason of the earlier education that the people would then receive as to the superior qualities of a brick paved road way under any favorable conditions."

C. C. McMillan, Secretary and Treasurer of the Medora (Ind.) Shale Brick Company, says:

"Referring to your letter of the 7th inst. relative to Prison Labor and State owned brick yards, am pleased to say that I am in sympathy with your views as set forth in your editorial in the May 5th issue of 'Brick and Clay Record' which in my opinion covers the ground very thoroughly. The only question that brick manufacturers need be alarmed about in my opinion is as to the quality turned out by the state if they are up to standard and the work of construction of roads is up to standard there is no doubt in my mind but what there will be a greater demand for paving brick than we manufacturers can supply, since the adoption of brick for roads by the States will be the best advertisement that we could hope for."

Charles M. Crook, general manager of the Tidewater Paving Brick Company, of Catskill, N. Y., past president of the National Brick Manufacturers' Association, writes:

We are very much pleased with the position taken by Governor Glynn, believing he is quite right in his statement that brick is the best of all paving; but fear he is mistaken in the amount required to build his paving brick plant. I have had some considerable experience in building plants, and know that $75,000, the amount appropriated, will not see him very far along. It is probably not realized by the State how much technical education, experience and careful attention is necessary to manufacture a good paving block, even with pretty fair material. I fancy a better organization than will be had with convict labor will be necessary for the successful operation of the proposed plant.

G. W. Lenkerd, Secretary and General Manager of the Clymer (Pa.) Brick and Fire Clay Company and Secretary of the Eastern Paving Brick Manufacturers' Association, writes:

"The writer has read the editorial in the last issue of 'Brick and Clay Record' relative to the making of paving brick for state road purposes by prison labor.

"I am glad to see the high endorsement of vitrified paving brick given by the Governor of New York State and the other states mentioned and the paving brick men should be quick to take advantage of this and see that this endorsement gets the proper recognition by all who use paving materials. This endorsement comes however as a recognition of the superior merits of vitrified clay for paving purposes, and as a result of the splendid results produced by the most skillful brick manufacturers in the country after years of effort to produce the best paving material that the world has ever known.

"I do not believe that the paving brick manufacturers will suffer greatly as a result of several states erecting plants for the manufacture of paving brick by prison labor, except as the paving industry will suffer generally from the effects of the use on state roads of bad paving brick and thus help to bring vitrified paving brick into bad repute, just as any brick factory at present may cause the trade to suffer by turning out inferior grade material. I do believe however that it is an economic mistake for any State to attempt to manufacture with prison labor a material that requires the training and skill required for the manufacture of high grade vitrified paving brick. To quote a gentleman in the trade, 'Just think what a time the state will have cutting its "eyeteeth" in the paving brick building.' The question is, what is the state to do with the large quantities of second grade brick and culls that it turns out at its factories? Under proper inspection these cannot be used for paving purposes and will inevitably have to be dumped on the building brick market at whatever prices some favored contractor or politician may choose to pay the state for them. It is my opinion that the manufacturers of building brick have more to fear from prison made brick than do the paving brick manufacturers, and these are the gentlemen who should look into this proposition.

"I am heartily in favor of providing healthful labor for prisoners but if the state desires to utilize prison labor in building roads it should be done by using the convicts on the grading and actual construction work on the highways rather than to undertake the manufacture of high grade paving brick."

J. B. Hammond of the Jos. Soisson Fire Brick Company of Bolivar, Pa.—Vice-President of the Eastern Paving Brick Manufacturers' Association not only endorses Governor Glynn's attitude but goes out of his way to write personal letters to two other manufacturers whom he knew to have views on the subject which were not as broad as those which Mr. Hammond himself possessed. His letter to "Brick and Clay Record" follows:

"I have not read Governor Glynn's message nor am I fully informed as to his plan. I have read the editorial in your issue of May 5th and heartily agree with it. My position on this subject may be understood by the copy which I am enclosing of a letter I wrote to two prominent paving brick manufacturers last week.

"I received an acknowledgment under date of the 2nd from one of the gentlemen to whom the letter was sent, he stating that he had found a division of sentiment among the different paving brick manufacturers and that he would let the matter drop. I have since heard, however, that he has changed his views entirely and that he is in thorough accord with the principle of State owned brick plants and rigid inspection of the product of brick factories employing convict labor."

The letter, a copy of which Mr. Hammond enclosed, reads in part:

"I am first and foremost in favor of convict labor in the building of roads and if it becomes necessary to utilize it as well in the manufacture of brick for those roads, I am willing to go that limit and prove the idea. I do not believe there will be a great many convicts available to man brick factories if they are used to the extent that they may be used for the work done on brick paved highways.

"I am not afraid of the convict labor of Pennsylvania. I believe with the new penitentiary that is being built in Center County outdoor healthy employment will be provided for all the convicts of our State in ways that will not interfere with the brick industry. While I agree that the united effort should be made to regulate convict labor so far as it applies to the industry in which we are mutually interested, that we should also apply the regulation to the elevation and improvement of the condition of the convict himself and that by doing so we will receive the approval of the good people who are spending their lives and fortunes in humanitarian movements.

"I am glad you have taken this subject up and hope that some interest may be aroused in this line as I believe it will result in much benefit to society."

C. C. Blair, General Manager of the Besse-

The Editor's Corner

mer Limestone Company of Youngstown, Ohio, writes us:

"I have read with interest your editorial in your issue of May 5th with reference to State owned brick plants.

"Personally, I am against the State going into any sort of business that will compete with private enterprises, but with the brick plants, the State could use the material themselves for the construction of roads or buildings, which I believe, would do no harm to the private concerns. In fact, it is about as good advertising as we could possibly do, and it would certainly be a good thing to employ convicts at this kind of labor, although, I doubt whether men of this sort would become very efficient.

"So far as we are concerned do not feel that we could protest against any such action of the State's."

Another letter comes from J. B. Wilcox, Manager of the Alliance (Ohio) Clay Product Company.

"In regard to our attitude on the issue of State owned brick plants, we are heartily in sympathy with this move. We believe the indorsement given brick both as a paving material and building material by State owned brick plants will overcome any loss of trade that might be experienced by those already in business. It seems to us that the manufacture of clay products is the one industry that could be operated by convict labor and be beneficial both to the State and convict. If the States go in to the manufacture of paving brick and building brick they certainly will be better judges as to the cost of production and will not be as likely to think that the manufacturers are holding them up."

A general expression of opinion on any matter that affects the paving brick interest would be incomplete without a few words from Will P. Blair. It is unnecessary to say who he is, or what his words mean to the men in his field. His letter reads:

"It must be admitted that labor must be provided in some way for convicts. Any other course is inhuman and can scarcely be thought of. It is scarcely less indefensible to undertake to confine such labor to a mere matter of exercise that accomplishes no economical result whatever. Merely to pick up a burden, carry it a distance, return and lay it down again for the sake of exercise only, is a crime in face of the fact that so much can be done for the welfare of human existence. Better roads for everybody, everywhere, is the greatest want in the public welfare that exists today. Why should it not be supplied to the extent possible by the violators of law and order? There is no reasonable answer to the contrary.

"In so far as it relates to the manufacture of brick for paving the highways of the state, and thereby supplying to the extent of such production, a market for the sale of paving brick that would otherwise be enjoyed by those now engaged in the business, and whether such action on the part of the state may result injuriously, is a question well worth careful consideration before objections thereto be offered. We believe that the public will construe such action on the part of the state as the very strongest possible endorsement of the merit of the material for the improvement of her highways.

"We believe that the state will naturally take a great interest in the use and construction of her own product and that the manufacturers will thereby secure a co-operative influence in that direction that will outweigh any confiscation of market opportunity.

"We believe that by the state undertaking the manufacture of paving brick, a better public appreciation of the skill, the art, the expenditure required and the capital employed, and the hazard surrounding the manufacture of the product and that it will entirely dispel any remaining current belief that any manufacturer engaged in the business enjoys an unreasonable profit. With the state occupying the position of a manufacturer of clay products, an inquiry will naturally be developed for a wider and more extended use of brick. Its general economy, its wide range of adaptability will respond with an answer in a forceful way that the sensible conservation of the timber resources of the country can only be made by substitution and that the only practical substitute therefore is clay goods. In so far as the manufacturers of vitrified brick for paving purposes are concerned the market therefor is supplied and increased in a paradoxical way that does not obtain in the case of the manufacture of scarcely any other material within the bounds of the country. A market supplied in the case of vitrified brick for paving purposes means a market multiplied.

"There is another feature that is perhaps not fully appreciated by the brick manufacturers and their friends, and that is this: That the National Highways Association are advocating an improvement of 50,000 miles of national highways. If this is undertaken, which is entirely probable, on a basis of eighteen feet in width, it will require the enormous sum of twenty-two billions of brick to construct that mileage. Of course it will take several years to accomplish the result, but in the meantime additional mileage will be added as belonging to a class of heavy traffic roads, that in ultimate wisdom vitrified brick will be used for their improvement; for in the future propaganda of road building all other competitive materials of greater or less worth, that are now being used, have yet to find where they economically belong. A few of the types at least, which doubtless include some of the most widely advocated will fall into an obscure place if not entirely lost sight of. Some of the types may survive if willing to take the place to which they are economically adapted. Vitrified brick as a paving material has already found its place, meeting an economy, a satisfaction in use, affording a minimum of traction resistance and a maximum of durability, a place on the excessively used highways to which no other paving material can respond.

"We can therefore afford to be liberal minded with the taxpayers of the country. They are our friends and we are their relief."

Trade Papers—Their Purpose and Individuality

By Elbert Hubbard

FRA ELBERTUS, THE ROYCROFTER FROM EAST AURORA, PHILOSOPHIZES FOR THE BENEFIT OF "BRICK AND CLAY RECORD" READERS .·.

INDIVIDUALITY implies intelligence, purpose, power, intent—something unique, peculiar, different.

The trade paper has individuality and its editor is of necessity a personage, not merely a person.

The trade paper is published for a purpose, and that purpose is to give assistance to men in a certain trade.

It makes its subscribers stronger and more competent; gives them specific information; puts them in touch with the latest changes in their particular line of work; mirrors every improvement to the intent that the dealer, the artisan, the artist, the craftsman, shall not be handicapped by lack of information as to what others are doing and saying.

And so the editor of a trade paper is the friend, the big brother, the partner, of every man who makes his bread and butter in this particular trade.

He must confer a benefit. He must get a tangible result, and so you will find that editors of trade papers are not only able writers, but they are skilled men who know the science of business.

Happiness and evolving prosperity are synonymous. One only gets the creeps when the tide turns against him, but instead of resorting to booze or dope the man worth while comes up stronger, hits harder and reflects the spirit which won't die.

The man who lays down, invites defeat because he loses his courage and is fighting a lonely individual battle, with what Henry Ward Beecher called "the cussedness of inanimate things."

So the moral is this: Be open for knowledge, absorb it, and you will close your portals to defeat or failure. Stand by the editor of your trade paper. Write to him when he is rightfully standing by you, when you find a good thing in his magazine tell him he is a lallapaloosa and your heart is with him. You will feel better and so will he. There is nothing in the world quite so inspiring as a recognition of good work.

We need to be continually verifying our opinions, substantiating our statements. We need some vital information on subjects outside our ken.

The paper, or book, that tells us what we know or what we think—or what we think we think we know—is the one we like.

Successful writing is not altogether the expression of a new idea, but the forceful presentation of an old one.

The Trade Journal does both. It serves up known truths appetizingly and also gives us new food for thought.

And this presumes an individuality behind it—a pulse, a heart, a sympathy, an understanding of you and your needs.

It is published not for light entertainment, but for the definite and valuable knowledge which it imparts to the reader.

It meets the needs and requirements of every subscriber, saving him both time and money.

It means service and utility, influence and power. It means Brotherhood.

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Heads Potters' Association

Being a Brief Story of the Yet Unfinished Career of a Man With an Unquenchable Capacity for Work

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William Shaw George*

THERE is an old saying that "an humble beginning generally results in a good ending." Take a peep at American history, read about Lincoln, about Grant or about McKinley. Each of these men who achieved fame in their particular calling had humble beginnings. And, each in the later years of life became Masters of their tasks. These three were statesmen and soldiers. In American commercial life, we only have to read of the early history of Carnegie, the telegraph operator, and Rockefeller, the country store clerk. Also, William Shaw George, American pottery manufacturer—now president of the United States Potters' Association, who with a humble start, mastered every obstacle and came to lead his craft.

But, go back to the soil and one finds the early business training of William Shaw George. It was on the farm where the subject of this sketch learned much about how to sell goods, and he has been in the business of growing, manufacturing and selling ever since he left the school room. Also he knows something about good horses, for the breeding of fine stock was one of the features of the "George Farm" as the natives in the East Liverpool, pottery district called it.

But the hum of the wheels of industry and the selling of merchandise appealed to "Will" George. He went into the potteries at East Liverpool to learn the business, and learn it he did. That is why he is looked upon today as one of the most successful domestic pottery manufacturers in the United States.

Decorating of pottery appealed to him. He made success of his first tasks, and was advanced to higher positions in rapid succession. The clock was turned toward the wall, difficulties were overcome and, finally, he was at the top of his profession.

Graduating, so to speak, from management of a decorating force, his next leap was that of manufacturing. That opportunity was presented in the little but growing town of East Palestine in the northern part of Columbiana county, Ohio. First it was one pottery that Mr. George had charge of at East Palestine. Under his aggressive management business grew, and another plant was built, also at East Palestine. Later the first pottery was destroyed by fire. Then another plant was erected at Cannonsburg and then the second pottery at Cannonsburg was built. Only recently Mr. George took a long term lease on the plant of the Pennsylvania China Company, at Kittanning, Pa.

Every one of these potteries is working to capacity. No other single individual in the United States controls so many kilns manufacturing domestic ware as does William Shaw George.

When the great association of pottery manufacturers met in Pittsburgh, last Fall, the name of William Shaw George came like a flash. He was the man for the place. Tarriff troubles loomed large—difficulties threatened. Here was the man who had spent his life in looking at big obstacles through the large end of his opera-glass. The choice fell upon him, and the United States Potters' Association felt that the meeting was singularly successful.

So, as one reads in the public prints of the large measure of prosperity that has come to the pottery trade, and which bids fair to stay by that industry, despite adverse legislation and labor troubles aplenty, one feels that much of the wisdom that built the industry to its present proportions, was brought into play when it came to the selection of a president for 1914.

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*Portrait on Front Cover.

Face Brick Manufacturers
Will Quote Own Freight Rates

Establish Rate Bureau Where Members Will Secure Lowest Legal Rate on their Shipments

R. D. T. HOLLOWELL.
Whose Energy and Consistent Effort is Helping the American Face Brick Association Make Face Brick History.

FOURTEEN months ago, when the A. F. B. A. took real form and began to be a real association, the matter of freight rates was thought to be the most vital of the many questions before the meeting. Now a start has been made, it is expected that the face brick manufacturers and dealers will find it is as important as any other item in their business.

TWO questions of vital importance to face brick manufacturers and dealers were discussed and settled at the meeting of the American Face Brick Association, held in Cleveland, Ohio, May 12th. The first was the adoption of a standard order form, which will be used by all members of the association, and which has been approved and accepted by the Face Brick Dealers' Association. The second, and of even greater importance in some minds, was the employment of an experienced rate clerk, *competent to quote freight rates to the members of the association and to prepare, under the secretary's direction, such data as will enable him to quote the most favorable rate, in every instance.*

J. M. ADAMS.
Appointed Chairman of the Transportation Committee and Elected a Director at the Cleveland Meeting.

A Transportation Committee was appointed, consisting of J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, as Chairman; F. H. Chapin, manager Hydraulic-Press Brick Company, Cleveland, Ohio; S. C. Martin, president Kittanning Brick & Fire Clay Company, Pittsburgh, Pa. The importance of this committee is reflected in the prominence of the men who compose it and there is no question of the immense power that will be brought to bear upon the question of better and more uniform freight rates and classifications.

The Standard Order Blank is the result of a painstaking investigation of the wishes and needs of the manufacturers, coupled with the opinions of the dealers who are, in a way, the "party of the second part" in the transaction here reduced to plain black and white. By it, the dealer is called upon to furnish the manufacturer with the name of the man who is going to use the brick, and the location, character and architect of the building in which it is to be used. This is a radical departure from the old methods, and indicates how the lines of this industry have been broadened. Five years ago, the dealer considered the knowledge of the location, architect, etc., as a part of his stock in trade, to be guarded jealously, particularly from the man who made the brick.

The Secretary presented a synopsis of the policies of the majority of the members of the association, regarding terms of payment, as given to the jobbers and dealers in face brick, and it was moved and carried "That the Board of Directors recommend to the membership of this association that from this time on, all payments will be required on or before the 25th of the month following the month in which the shipment is made—that is, that payment should be required on or before the 25th of September if the shipment is made in August."

J. M. Adams, of Columbus, Ohio, was elected a director to succeed W. J. Snyder, of Brazil, Ind., resigned. The Association is to be congratulated on its success in inducing Mr. Adams to come in once more, to an official position in the organization which he fathered.

The American Face Brick Association is doing work. It is consistenly carrying out, one by one, the objects outlined at its earlier meetings, and by the weight of its persistency, bettering the conditions of the industry, quietly and effectively. It is, and has been, ever since its inception, one of the greatest, if not the greatest power, in the face brick industry.

Chicago has been chosen for the next annual convention of the American Road Builders' Association, which will be held early in December of this year. This convention will be of some magnitude, if the last meeting be a criterion, for there the registered attendance was close to 3,000. The American Road Builders' Association was organized in 1902, and is therefore recognized as the pioneer good roads organization. The officials responsible for the conduct of the affairs of the association have always believed that the best interests of all those connected with highway improvement would best be conserved by the holding of one large national convention a year for the presentation of papers and discussions on road building topics. At this meeting also it was felt that there should be held an exhibition of road machinery, materials and methods, and accordingly, at its meeting at Columbus, Ohio, in 1909, it inaugurated the first successful good roads exhibition.

Progress at Ohio's Prison Brick Plant.

The deposits of shale on the state property at Mansfield, Ohio, in connection with the Ohio State Reformatory are to be utilized in the manufacture of paving block, with which to build brick roads on the reformatory farm, says the Mansfield "News."

An order has been placed with the J. D. Fate Company of Plymouth, Ohio, for a complete brickmaking outfit, for both common and paving brick, and that concern is working on the machinery night and day at the present time.

Several tests have been made with the clay and shale deposits on the reformatory property to determine whether they could be utilized. It was discovered that the shale was a trifle too brittle to be used for the manufacture of paving blocks, as they chipped too easily. It is believed that if this shale is mixed with some of the shale secured from the shale deposits north of the city that it can be used in the manufacture of the paving blocks. Experiments along this line will be conducted.

A brick road will be constructed north along the prison wall and the road leading from the institution to the dairy barn will also be paved. Several other roads are to be paved during the summer.

Another addition to the farm will be the building of a new brick silo. The brick which will be used in the building of the silo will also be manufactured at the institution.

A Gold Mine in Old Freight Bills

One Clayworking Concern Saved $2,500 on One Series of Shipments, by Employing a Freight Traffic Counseler

By Irwin W. Preetorius

IRWIN W. PREETORIUS.

When a single claim for a freight overcharge, amounting to $2,500, is allowed a clay products manufacturer, despite the fact that his prices had been made on a basis given by rates quoted by no less than four different sources, it would seem that fully as much attention should be paid to this expense item in the manufacture of burned clay, as any other single phase of the business.

Any one following the complex question of railroad traffic matters, must realize that upon it, and the varied and manifold decisions that are being handed down every day, by the Interstate Commerce Commission and by the several state commissions, depend much of the welfare of his enterprise. This applies to the dealer who receives, as well as to the manufacturer who ships.

The question is one of great intricacy. For example, the Interstate Commerce Commission requires that the carriers give thirty days' notice of any change in rates (and this applies to reductions as well as to advances) before these changes become effective. And it devolves upon the shipper to become posted as to these changes —the Commission making it shipper's duty to learn, instead of the carriers' to notify him. True, the changes are, as required by law, "filed" and published. But the method of publication is not such as to make it at all certain that the shipper will become, as it were, automatically acquainted with the proposed change before it becomes operative.

Quotations based upon a rate that is advanced before the goods are shipped, puts a direct loss upon the shipper. Quotations based upon a rate that is to be lowered before the goods are shipped, may be so high as to lose contracts, in competition with shippers that have timely knowledge of the proposed reduction.

Owing to a natural law of trade, overcharges on the part of the carriers are much more frequent than undercharges. And where no claim is filed for these overcharges, they are very apt to become lost, it being manifestly improvident for a carrier to spend time and money seeking a chance to lower its own revenue. Shippers who have used an erroneously high rate in making a quotation are apt to pay the rate without question, and, since they receive the margin of profit that was originally calculated, see no "danger signal" in the paid freight bill. Yet the commodity that has been moved has had an item of expense "tacked onto" it that it should not have rightfully borne, and the shipper is made to contribute to a dividend on railway shares in which he has no participation.

Many of the large industrial concerns that are shipping vast quantities of merchandise across the country, employ expert traffic men, who take up each "expense bill" (as the paid freight bills are called) with the assumption that the rate charged is too high. These traffic experts use their knowledge to detect flaws in the routing, the classification and the basic rate, with a view to reducing the amount that their employers have paid. If they find no flaw, then the rate is correct. But they do find flaws, and save their employers many times the amount they draw in salaries.

Small shippers feel that they cannot afford the employment of these high priced men, since the chance of finding overcharges is not sufficiently large to warrant the salaries this employment would entail. They lose sight of the fact, however, that without the knowledge of the lowest rate, they cannot make the lowest price—hence narrowed markets and curtailed sales.

The writer found one case, where a large lumber concern, although fully convinced that it was using the lowest possible rates upon its shipments, paid out more than $6,000 in overcharges, in a period of two years, and a manufacturer of clay products, taking its rate from four different sources in the same railroad company's offices, and finding them to be alike, used the rate to figure a large contract, which it secured. After the shipments had been made, the writer had access to the "expense bills" and found that the overcharge on this one contract amounted to $2,500—and recovered it for the manufacturer by filing a proper claim.

There is no doubt in the writer's mind but that an immense number of shippers are doing just what the two concerns just mentioned were doing, until they hit upon the plan of employing a Freight Traffic Counselor. There is no doubt but that a veritable gold-mine of overcharges are being filed away in the shippers' offices, being considered mere records of amounts paid—like receipts for taxes or water rates.

The Freight Traffic Counselor is the shipper's Reclamation Bureau. He takes these old "expense bills" and seeks to find a way whereby a goodly part of them will yield back a revenue, by affording a basis for a claim for overcharge. He uses them to determine the routing, classification and rate that the shipper has been using, with a view to finding a new routing, a new classification or a new rate that will enable the shipper to move his output more cheaply in the future. Working, as he does, for various concerns, and being familiar with as many commodities, he is able to use his more varied knowledge for the benefit of all of his clients, and, as his fee is based upon the amount of work each client gives him, the charges are not so high but that even a small shipper can take advantage of his services.

N. P. B. M. A. Will Hold Annual Meeting in September

BUFFALO, N. Y., will be the scene of the next annual meeting of the National Paving Brick Manufacturers' Association, which will be held some time in September of this year. At the regular meeting of the Board of Directors, held in Cleveland May 11th, this decision was reached, and the adoption of a committee report, dealing with separate specifications for country highways and city streets, these to be published, however, in the same pamphlet.

The committee, which consisted of C. C. Blair, Eben Rodgers, W. T. Blackburn, H. S. Renkert and Will P. Blair, was appointed at the directors' meeting held in New Orleans. It was as follows:

"To the Board of Directors of the National Paving Brick Manufacturers' Association: The undersigned committee to whom was referred the question of revising our specifications, submits for your consideration the progress it has made.

"It is the sense of this committee that the specifications for city streets and country roads be made one for each, but printed under the same cover, in the preparation of which the committee is agreed that there shall be avoided as much as possible, foot notes and explanatory clauses from the publication which shall be made to include these specifications.

"It is likewise the sense of the committee that there be prepared a hand book which will deal exclusively with explanations, reasons and references which relate to and are incidental to the understanding, operation and enforcement of the specifications.

"We have not found our task an easy one and this is not to be wondered at when we recall that there is debatable ground existing with the best qualified engineers of the country.

"We therefore submit to you the progress that we have made in the discharge of this duty as our report of progress thereupon, for the further disposition of this Board, its criticism and advice thereupon, as it deems best."

The specifications in detail were found with but few and very slight changes to meet with the unanimous approval of the board and all of the members present.

Three Good Reasons for Underdraining

Here are three reasons why a farmer should underdrain wet, soggy land:

1—To carry off water before it stagnates or becomes sour near the surface, thus poisoning the land for every agricultural product.

2—To lower the water line of unredeemed land as far as the roots of plants and cultivated fruits. The water soaks into the ground and, being carried away and scattered, makes the land more porous and a better absorbent of carbonic acid gases. It also allows the farmer to plow earlier in the Spring, three weeks, at least, also to work his Summer land immediately after a heavy rain without injury, also makes tillage easier and more pleasant, also the land warmer, keeping off frosts both in the Spring and Fall. It also improves the flavor of all kinds of fruits.

3—Draining will enable fertilizers to produce their greatest results. The money spent to fertilize wet ground is wasted. Drainage, especially underdraining, will prevent the land becoming honey-combed with every frost in Winter and also prevent baking and cracking of the ground in Summer. It will increase large grass crops as well as larger crops of all kinds of grain. It will make the ground dryer in wet weather and more porous to hold the moisture in a drought.

Permanent Farm Buildings

How Burned Clay Can be Used So Cheaply as to Rival the Cost of Frame Construction

By J. B. Davidson

Professor of Agricultural Engineering, Iowa State College Ames, Ia-

Clay Block Silo at Dallas Center, Iowa.

WHAT HAVE WE in the subject of farm buildings? In the first place, property which, in the United States, represents more than 15 per cent of the farmers' fixed capital. The total value of farm buildings for this country, as given by the 13th census, was $6,325,451,528—more than six and a quarter billion dollars. This was an increase of 77.8 per cent over the amount given as for the year 1900.

It ought to be a significant fact to manufacturers of building materials that the American farmer is annually spending about $500,000,000 for his farm buildings.

Another significant fact is that these buildings represent, to a large extent, individual effort in the design and choice of material. The lack of a fee has kept the engineer and the architect away. There has been no incentive for anyone to make an extended study of the construction of farm buildings, beyond the point where he could supply his own requirements with economy.

A third significant fact is that the comfort, pleasure and profit of the farm depend, to a large extent, upon the character of the farm buildings. If the house is a home to be revered, attention must be given to lines that will linger in the mind in pleasant memory; if the stables and pens are to guard the health of the live stock, attention must be given to the sanitation side. In every step the farm building needs the skillful designer as much as it requires the expert builder.

Farm buildings, as a whole, represent the least permanent class of buildings in existence. They are, as a

$500,000,000

is being annually spent in this country on farm buildings, only a small proportion going into structures that reduce the enormous fire risk and the disproportionate repair and maintenance costs of frame.

The American farmer is, to a great extent, his own architect.

He chooses the materials with which he is most familiar.

A Co-operative Corn Crib at Fonda, Iowa. This Crib Is Built of Hollow Tile, Reinforced with Steel Wire.

Brick Farm House at Ankeny, Iowa. The Wood House and Laundry Room at the Left Are Built of Hollow Clay Building Tile.

rule, frail—built of the least durable materials in use. The reason is a rigid, but mistaken economy.

So much for a survey of the magnitude and character of farm buildings as they exist today.

A permanent building is one that is carefully and skillfully built of durable and lasting materials. What materials are there, and what of their durability?

In general, there are three kinds of building materials in use—lumber, metal and masonry. Since the question has to do with permanency, lumber need not be considered here. We deal only with metal and masonry.

The principal metal used in building construction is steel. Steel is especially well adapted to resist tensile stress, and for such is the best and most practical of materials. In any system of building, this should not be overlooked.

Masonry material is, perhaps, the most durable of all building materials. Masonry is best able to resist compressive stresses and, for this purpose, it is by far the cheapest of all materials for ordinary buildings. And of all masonry materials, clay products are among those most satisfactory, most widely distributed and most generally used.

Good material of burned clay has been able to resist the action of time, of storm, flood and fire. Brick and hollow block or tile are the two principal materials to be

Corn Crib and Granary at Adaza, Iowa. These Are Built of Hollow Clay Segment Blocks, with Steel Wire Reinforcement.

In One Year

Four Hundred and Thirty Eight Barns were destroyed by fire in the state of Iowa. This is the record for 1912 as shown in the Office of the Iowa State Marshall.

considered in this connection and, of these, clay blocks or hollow tile made of burned clay seem to be especially well adapted to the construction of farm buildings.

This last point must be emphasized. There is no reason why hollow clay block cannot be made as reliable, so far as durability is concerned, as the best quality of building brick. The thinness of the walls insures thoroughness of burning and uniformity of quality. The labor and some of the cost of manufacture is saved by this same thinness of walls or web. The labor of laying or setting is also reduced by the comparative size for the weight.

There is no material in use that can go into a wall as quickly as hollow clay block. The lightness of these clay units gives a lower cost of transportation by rail or wagon, than any other permanent material of the same cubic measurement.

Where warmth is desired, the hollow wall construction provided by the clay block cannot be excelled.

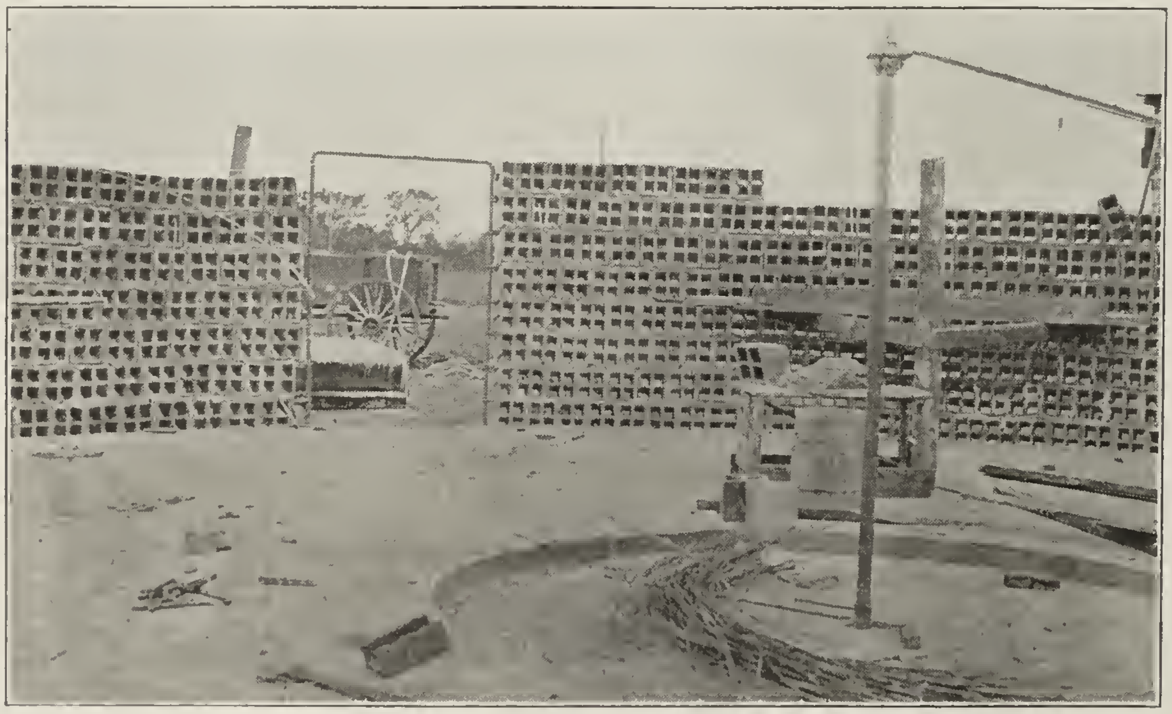
The air space in a wall may amount to as much as 75 per cent of the total cross section area. Less mortar, therefore, is used in laying up a wall of clay block than with brick.

J. B. DAVIDSON
Professor of Agricultural Engineering
Iowa State College, Ames, Ia.

For farm buildings, the strength of clay block is adequate for any demand. Farm buildings are not, as a rule, high buildings. The wall stresses are not great.

The Department of Agricultural Engineering at the Iowa State College has been interested in the construction of a silo and water-tank, the height of which is 54 ft. The wall is made up of 5-in. block set on edge and reinforced. The silo is 18 ft. in diameter and carries a 600 bbl. masonry water-tank on its top. This tank has been in successful use several years.

Some six years ago the Iowa Agricultural Engineering Section of the Experiment Station proposed the use of hollow clay block in silo construction. In 1913, of the 7,000 silos that were built in the state, perhaps 1,000 were built from silo blocks—hollow and of burned clay. Barring the few instances of poor construction, where sufficient reinforcement was not provided to resist the bursting pressure of the silage, or of poor workmanship that did not provide closed joints (and, in a few instances, poor materials), these silos have proven successful, and, when properly built, they are built for all time.



Building a Corn Crib of Hollow Clay Blocks. The Pole in the Centre Gives the Radius of the Wall as it is Built. Note the Reinforcing Wire in the Right Foreground.

A few barns, poultry houses and residences have been built with clay block, but so far this form of construction has not come into anything like the general use to which it is entitled. The use of special block in the construction of corn-cribs and granaries is coming rapidly. The first corn-crib of burned clay was built some four years ago and has proven to be very satisfactory. Some manufacturers are now turning out special forms of block for corn-crib construction.

Investigation and experience has proven that, where burned clay hollow block is used skilfully, it can compete, so far as cost is concerned, with any other building material in existence—not excepting lumber.

All storage buildings, like the silo, the corn-crib and the granary, must resist bursting pressures. The best form to resist such a pressure is the circular structure. If reinforcement be provided in the wall, this type of structure is very stable. The wall may be made very thin. *A four-inch silo wall, so far as strength to resist vertical stresses is concerned, is abundantly strong,* if built of good quality block.

The use of more material represents a waste of material. An attempt to build a silo wall heavy enough to resist the bursting pressure of the silage, without reinforcement, would run into prohibitive figures. In the case of a silo, $10 to $15 worth of reinforcement, laid in the mortar joints to resist the tensile stress, is equal to $200 worth of masonry material placed in the wall.

One of the most difficult problems in connection with the construction of new types of architecture (and this, it must be admitted, applies to burned clay in farm buildings), is to get the mason to use a little steel for reinforcement, where such reinforcement is necessary. In most cases, the machanics are so prejudiced against any material other than that which they have been using for years, that they not only will not attempt to do any of this reinforcing themselves, but actually interfere, so far as possible, with its use.

If this new construction is to take the place it is entitled to, we must have workmen willing and trained to this kind of work. It is simply a question of teaching modern workmen modern methods instead of allowing them to impede progress, because progress is, to them, something entirely unfamiliar and, seemingly, unfriendly. We must begin, as they begin, at the foundation.

And, regarding foundations in general, it is, of course, patent that a light frame building does not,

The Exterior of a Corn Crib in Course of Erection. This Illustration Shows the Rat-proof Table.

of a necessity, require as good a foundation as a building of masonry construction. In a frame building, if the foundation lacks in size, and there is some settlement, the only result is, perhaps, a slight cracking of the plaster, where plaster is used. If the foundations do not extend sufficiently deep, and there is a slight heaving action, due to frost, the results are more serious. But, in the case of masonry structure, if cracks appear, they not only appear serious, but are serious.

In Iowa, we are not in the habit of building good foundations. The man who builds an Iowa silo of hollow clay block and places the foundation in the ground only a foot or so, may find the silo cracked after a single season. Here again the man who builds the silo needs enlightenment. He must be divorced from his frame ideas and made to pay court to a better line of thought and action.

A Hollow Clay Tile Poultry House at Cantril, Iowa. Vermin Proof, Warm in Winter and Cool in Summer.

The fire loss to the farmer is very large. It is true that many of his storage buildings contain so much in the way of combustible material, such as hay and feed-stuffs, that no doubt a building of ordinary fireproof construction would be badly damaged, if not totally destroyed by a fire. Yet a clay block barn ought to be able to restrain a fire sufficiently well to make a fire a very slow burning one, thus insuring the lives of the stock, if no other salvage were effected.

No material can burn faster than the air can get to it. If combustible material be surrounded by a fireproof wall, it cannot burn rapidly.

One of the great fire hazards is through the roof. The house catches fire—and the barn "goes." Isolation and poor fire-fighting facilities are the rule. And the question comes—why not use an arch of burned clay block for the roof of the barn—or the house for that matter, instead of building it in frame, as is the present custom? This has been investigated and *it has been demonstrated that it is possible to build a roof in burned clay at a very small advance cost of covering the same area in frame.* Clay block are well adapted to resist the compressive stresses. A very thin wall will suffice, but it must be stiffened with a few ribs to resist wind pressure. If these arches be properly designed, they are very stable.

That fireproof construction of farm buildings is important is shown in the records of the Iowa State Marshal. In 1912, no less than 428 barns were destroyed by fire in the state of Iowa.

If clay products are to take the place to which they are entitled, in the construction of farm buildings, new and special designs and methods must be used. The material must be made in a way and laid in a way that will insure its most economical use. Reinforcement must be simplified and standardized. A propaganda for its intelligent use is as important to the manufacturer of hollow block as it is to the steel man who makes it. This reinforcement is light—a No. 3 wire is a very convenient size —it is not too large to interfere with the laying of the block, not so small that it occasions the laying of a large number of strands. Long walls should be strengthened by corners and pilasters rather than by the use of a large amount of material.

We have spoken of the rigid, but mistaken economy that has led to the building of farm buildings in perishable materials. Some explanation of this lies in the builder's environment—everything he sees, or ever has seen, in the way of farm buildings, has been frame. Everyone he knows paints to preserve this construction. Choosing his own design and buying his own material, he naturally chooses and buys that with which he is most familiar.

The farm journals are the logical organs for a strong campaign of education in burned clay products.

The single sale may not represent a large amount to the clay products manufacturer, but in the aggregate, the sales will made a good customer for brick material. The farmer has made the drain-tile business one of considerable profit. He can be made a good customer for brick and hollow tile, if shown the advantage of their use. He will reap a profit in a better home, a better equipment for his life work. The manufacturer of clay products has only to institute a campaign similar to that now being used in the big centres of population where the influence of better brickwork is changing the entire trend of our national architecture.

The Roof Frame in Place, Showing the Ventilator, a Hollow Tile Tower in the Centre of the Crib.

Refractory Brick

Their Manufacture, Properties and Definition

In Which Fireclay Brick, Silica, Magnesite Chrome and Bauxite Brick, as Well as Special Refractories are Segregated and Described

By T. E. Montgomery

Assistant Professor of Ceramics, New York State School of Clayworking and Ceramics, Alfred, New York

LET US FIRST of all get clearly fixed in mind what a refractory materially really is. Webster says that refractory means stubborn, unyieleding, resisting, and that is the idea that we want to get in regard to refractory products—that they are not alone difficult of fusion, but resistant and unyielding to the varied internal and external forces tending to destroy them and against which they must contend if they are to serve their purpose in industrial application.

By enumerating these destructive forces in a general way, we can see more clearly the main requirements which refractory products must be able to meet. Taking up the many forces to which refractories are subject in use we have as the most important, the effect of temperature or heat upon them. At comparatively low temperatures, in the case of fire clay brick, the fluxes or fluxing impurities in the refractory become active, forming easily fusible silicates. As the temperature rises, increasing amounts of silica and alumina are dissolved until the brick softens. At the same time internal changes are going on such as the crystallization of sillimanite and the continued formation of crystoballite and tridymite due to the inversion of the quartz present bringing about volume changes and hence internal strains. This last mentioned change occurs in silica brick as well as fireclay brick. Refractories in use are also subject to compression or load conditions which, while almost negligible at ordinary temperatures, become a very important factor at high temperatures. This will be discussed more at length a little later under "Tests." They are subject to expansion and contraction due to sudden temperature changes as in regenerator checkerwork, kilns, etc.; to corrosion and the slagging action of gases, ash, slags, glass or metal; to mechanical abrasion from ore and flux in blast furnaces or limestone in lime kilns; and lastly to chemical action under certain conditions such as the reducing action of carbon monoxide upon the iron of fireclay brick, the deposition of carbon in the pores of the brick by decomposition of hydrocarbons, the violent decomposing action of superheated steam, and the absorption of sulphur-trioxide gas. One factor at work tending to increase the refractoriness is the volatilization of the alkalies, but this is probably more than offset by the absorption of fluxes from gases, ash, etc.

We see then that the refractory at work has many difficulties to contend with, and that upon the quality and life of the refractory lining depends wholly the integrity of the furnace. We may say with truth that the present high development of metallurgical and chemical processes, the electric furnace and the recent developments in the commercial use of the oxyhydrogen flame are dependent upon and limited by the quality of refractory materials which we are able to produce to the end that these intense heats may be confined, controlled and made to do useful work.

Refractory products, then, to meet present-day commercial requirements, must have a wide variety of properties and as all of these necessary properties cannot be found in any one material, we find in use today different kinds of refractory brick to meet different requirements and uses. Refractory brick in general must first of all have a high point of fusion and be resistant to heat action. They must have good mechanical strength to resist abrasion at both low and high temperatures. They must be able to stand load or compression strains, especially at high temperatures. They must stand sudden temperature changes—sudden heating and cooling without checking or spalling. They must not shrink or swell in actual use, in place in a furnace wall, crown or muffle, nor slake or crumble when for any reason the furnace is not in use. They must be themselves low in fluxes, and resistant to the fluxing action of ash, gases, vapors, etc. We must have different refractory materials which are themselves basic, acid and neutral, to resist successfully the action of basic and acid slags, the corrosion of glasses and metals. And lastly, all refractory brick should be of as low thermal conductivity as possible for most purposes in order to conserve the heat of the furnace.

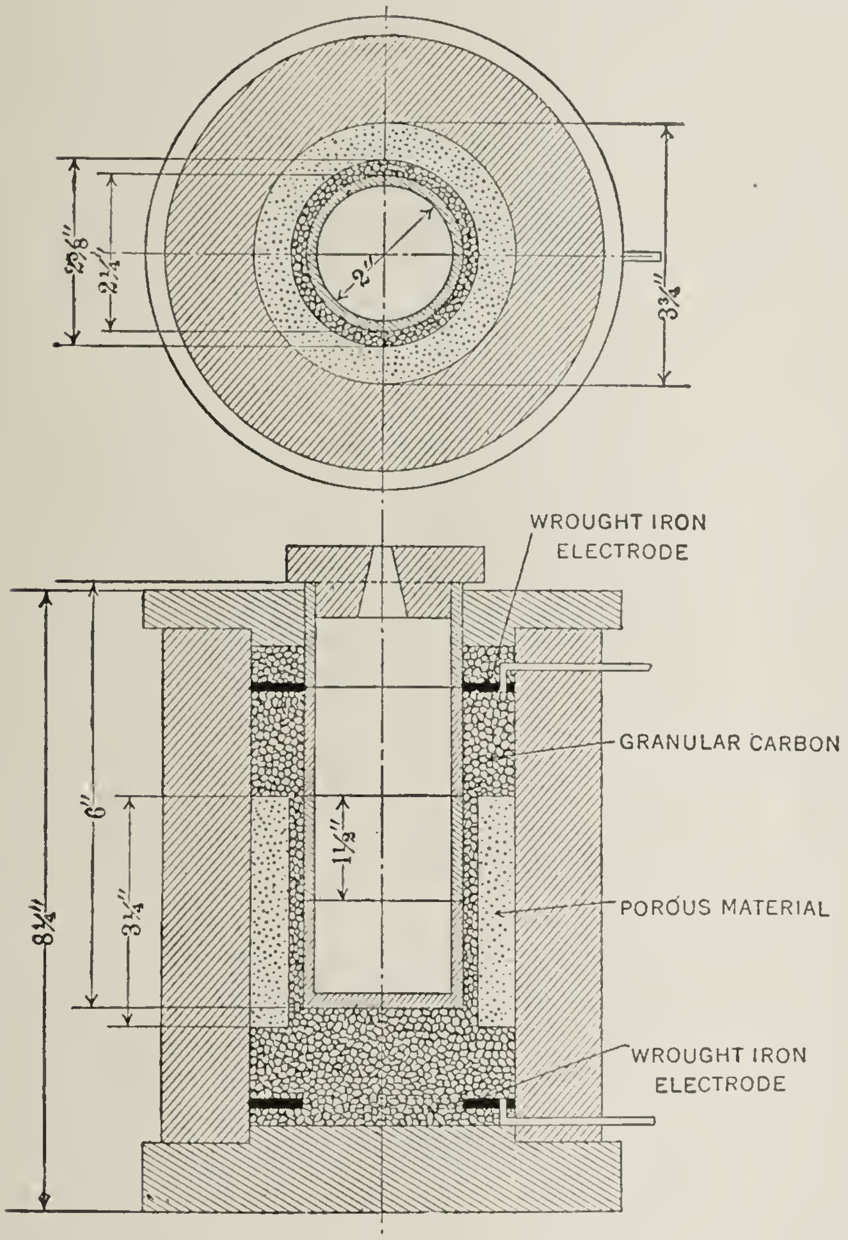
In considering now the manufacture of refractory brick, we will discuss them under the following classifications based upon the material used and its chemical properties: 1st. Fireclay Brick, a neutral product; 2nd. Silica Brick, an acid product; 3rd, Magnesite Brick, a basic product; 4th, Chrome Brick, a neutral product; 5th, Bauxite Brick, a neutral product, and 6th, Special refractories.

FIRECLAY BRICK.

Brick and other refractory products made from fireclays are by far the most important and most widely used of all refractories. The history of the industry runs back to the middle ages in Europe and it was established in this country immediately after the war of 1812.

In the manufacture of firebrick, practice varies to some extent in different parts of the country depending on the materials available. Firebrick are very seldom manufactured from one clay, as a highly refractory clay of sufficient plasticity to be molded is very rare. It is therefore necessary to use mixtures of different clays. Practice in Pennsylvania, Ohio and Kentucky is somewhat different from that in the New Jersey district, since the first mentioned states have available the very refractory flint fire clays, while New Jersey has not. In the western district various mixtures of No. 1 flint clays and No. 2 plastic bond clays are used, while in the New Jersey and eastern district a mixture of several grades of clay are used, all of which are more or less plastic, and to this mix is added a grog of crushed firebrick bats, calcined fireclay, or sometimes crushed quartz rock. Of the raw materials from which firebrick are made, it is necessary to distinguish at least two classes—No. 1 fireclays of the highest refractoriness, and No. 2 fireclays of a somewhat inferior refractoriness, but more plastic and necessary as a bonding material.

It is generally agreed that the lower limit for the fusing or softening temperature of No. 1 clays should be placed at about Seger Cone No. 32, corresponding to about 1700° C., and for No. 2 clays the lower limit should be placed at about cone 27 or 28, corresponding to 1620° to 1630° C. Our purest clays are naturally the most refractory. Kaolins and high grade fireclays approaching very closely in chemical composition to that of the mineral Kaolinite (Al_2O_3, $2SiO_2$, $2H_2O$), though they differ in physical structure from a well defined crystalline state to that of a typical colloid. The fusion or softening point of pure kaolins and the best No. 1 fireclays is very close to that of the melting point of platinum, about 1755° C. or Seger Cone 35. The Kaolins, while very refractory, are usually white, and therefore of value in the pottery industry, so that they have never been used in firebrick manufacture, though some of them of inferior whiteness might be used advantageously, especially those of good plasticity, as a highly refractory bond clay.



Carbon Resistance Furnace.

The most valuable of our fireclays and the most largely used is the No. 1 Flint Fire Clay. These clays correspond in chemical composition very closely to the kaolins, though in physical structure they do not have their soft, chalky nature, but possess a hard, dense amorphous structure, showing a well defined conchoidal fracture when broken. In color they are usually gray. They are typical set colloids, probably of chemical origin, being precipitated in open swamp waters during the formation of the coal measures. The best of them occur in pocket formations. The initial plasticity of flint clays is very low, in fact, they have almost no plasticity. Upon weathering and wet grinding, however, some plasticity can be developed, especially in the semi-flint clays, which have not so dense and hard a structure as the true flint clays. Due to low plasticity, the drying shrinkage of flint clays is very small, but due to their collodial nature, the firing shrinkage is rather high.

The volume changes characteristic of these clays subject the structure of the product in which they may be used to severe strain and due to the low tensile strength of these products, may cause serious checking or cracking. In this case the flint clay must be wholly or partly calcined, before use or replaced in part by firebrick grog. These clays, on being subjected to heat, become dense very slowly, the porosity remains high up to temperatures approaching very close to the softening point.

No. 2 fireclays, or the plastic bond clays, are used in small amounts to bond together the particles of flint clay or grog. Clays of good plasticity, and at the same time of good refractoriness, are not of common occurrence, and are very valuable. Usually they show plasticity at the expense of refractoriness and vary somewhat in quality. The geological condition which has developed their plasticity has, as a rule, also increased their content of impurities and hence these clays begin to become dense at a much lower temperature and show distinct evidence of vitrification much earlier than do the No. 1 fireclays.

In examining raw materials for firebrick manufacture, we make use of the direct determination of the softening temperature, the temperature porosity curve and the chemical analysis.

Having now slected our raw materials, many desirable physical properties in the finished product may be secured by a proper treatment in the manufacturing process—such as the proper proportioning of flint clay, plastic clay and grog with reference to sizing and intimacy of mixture; care to preserve a solid structure in molding, drying and repressing; and proper burning.

As the plastic bond clay is usually of a somewhat inferior refractory quality, it is evident that as little of it should be used as possible. A common proportion is about 85 per cent of flint clay to about 15 per cent of plastic clay. In general, we may say that just enough plastic clay should be used to give a thin coating to the flint clay grains, cement them at points of contact and fill the smaller voids between the grains. The brick then will have approximately the heat resisting qualities of the flint clay.

The fire brick mix is usually ground and tempered in a wet pan, which develops better than any other mixing and grinding device the full plasticity of the bond clay and a maximum number of different sizes of grain which produces better interlocking and bonding of the brick as a whole. Molding was originally done entirely by hand, and many fire brick are still made by this process, both manufacturers and users claiming that a better structure is developed in this way. For machine made brick several types of soft mud machines are usually used, although some brick are made on stiff-mud machines and a few by the dry press process.

These different processes produce brick of somewhat different structure and some are more desirable than others for certain uses. After the green brick are dried for a few hours on a drying floor, they are repressed, which straightens up the sides and edges, brings the brick to size and stamps the maker's or a trade name on them. After being thoroughly dried, the brick are burned usually in round down-draft kilns. The firing temperature varies within wide limits among different plants from Seger cone 9 to 15, and even cone 18 has been reported. In general, higher firing of the product produces a better brick, and all No. 1 fire brick should be fired to, at least, cone 13 to 15. Some users claim that a fire brick burned in a coal fired kiln are of better structure and strength than those burned with gas, due to the annealing processes which goes on in the kiln from the alternate slight heating and cooling effect incident to coal firing. This beneficial effect, however, is very doubtful.

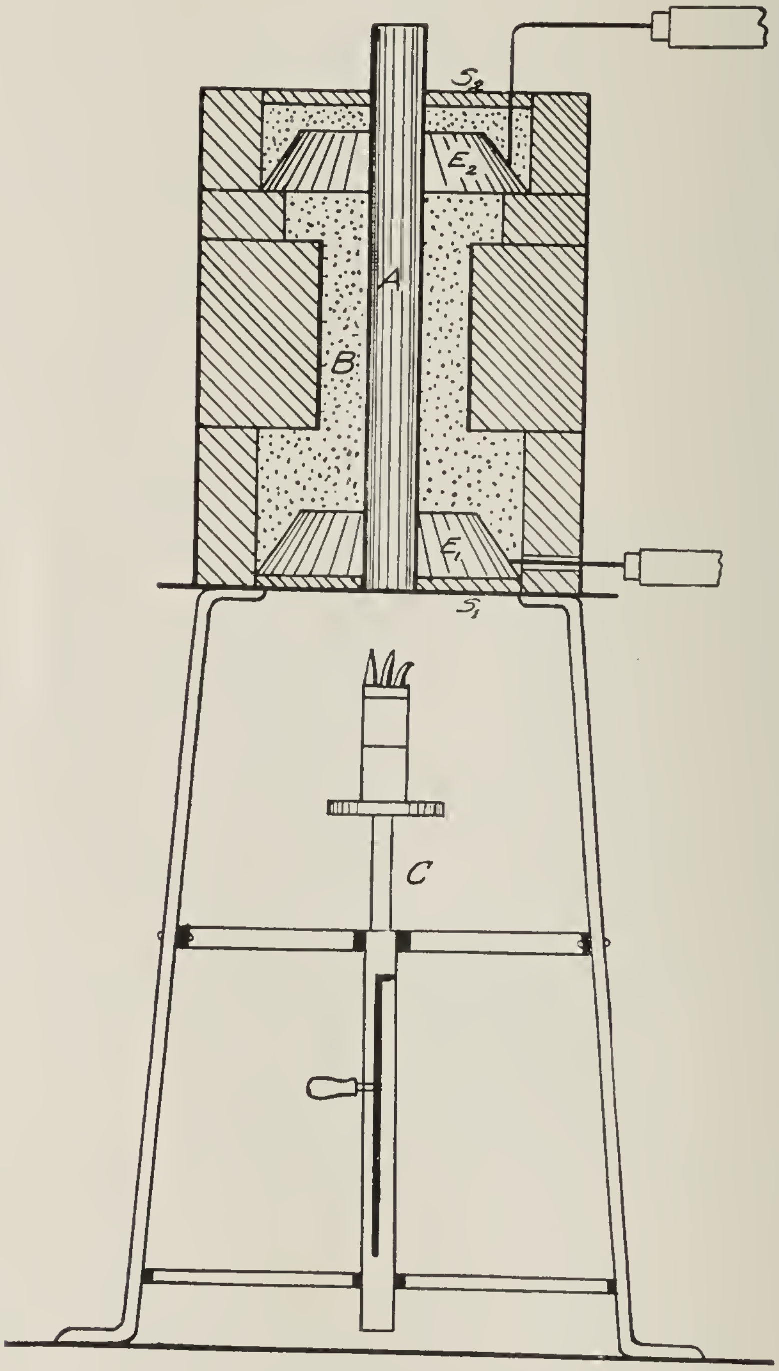
Fireclay brick are chemically neutral, and in their various grades are used in all kinds of work where a distinctly acid or basic material is not required. They are tested by determination of their fusing temperature, porosity, chemical analysis and more recently by load tests at furnace temperature. Bleininger and Brown, in Technologic Paper No. 7 of the U. S. Bureau of Standards, have carried out an extensive study of load tests at high temperatures on fireclay brick. They emphasize the fact that clays and clay bricks do not possess a definite melting point, but that they gradually soften until deformation takes place—that the viscosity is diminished at the same time from that possessed by the solid body to the degree of fluidity shown by the fused mass.

They have shown that this decrease in resistance to deformation has a more important bearing upon the durability of refractories than is generally realized. Thus while a fire brick may show a compression strength of 2,500-3,000 lbs. per square inch at atmospheric temperatures, it will possess but a small part of this strength at a temperature of 1300° C. or 1350° C. and that a load of only 50 lbs. per square inch at 1350° C. will differentiate with certainty between high grade and inferior products. A standard No. 1 fire brick will show about the following analysis: SiO_2 54.50, Al_2O_3 41.19, Fe_2O_3 1.35, CaO .19, MgO .32, K_2O .23, Na_2O .13, TiO_2 1.82. The total acid and basic fluxes should approximate very closely to 4 per cent and not run over 6 per cent. Cone of fusion will become 33 to 35, 1720 to 1750° C. Some brick, however, which would be included in the No. 1 grade, will run as low as cone 31 or 1685°.

SILICA BRICK.

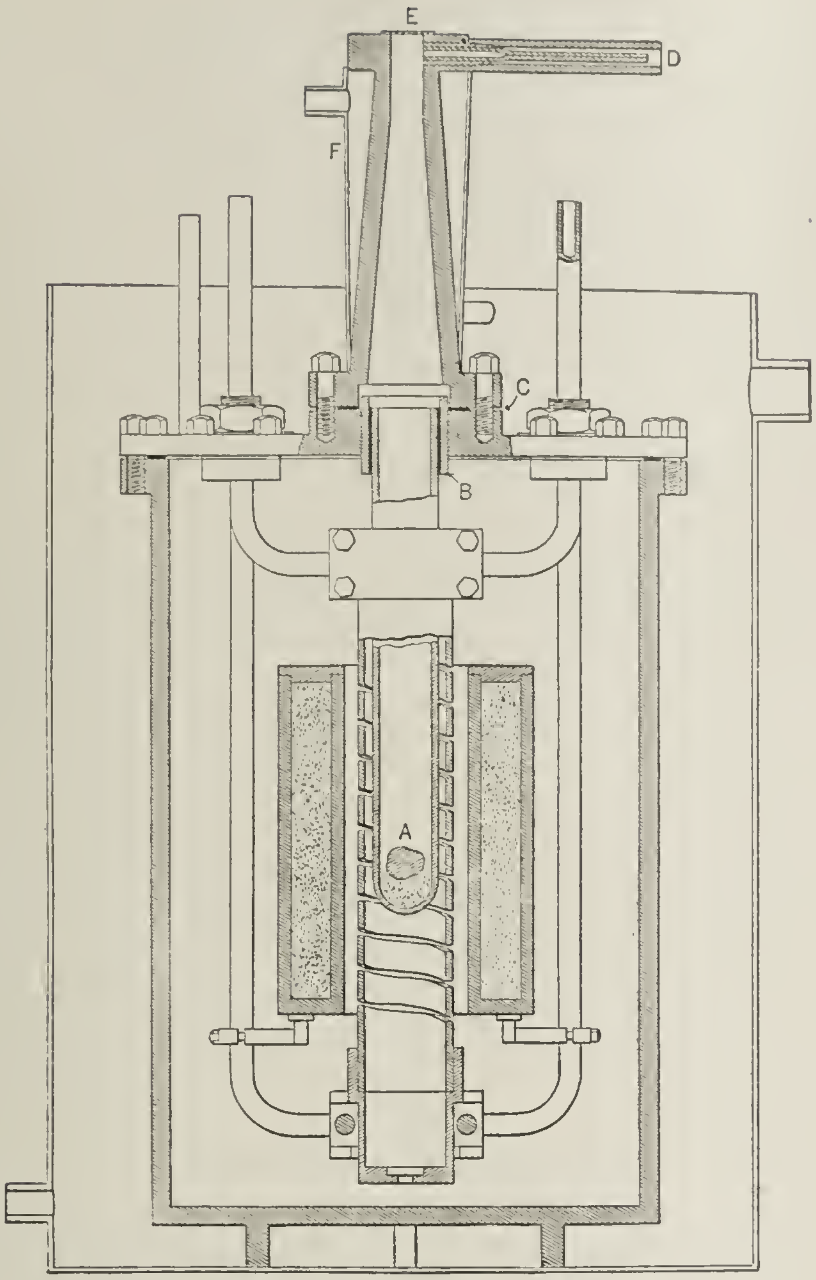
In the development of the siliceous refractories industry, an unfortunate confusion of names has arisen. This is partly due to the fact that from the beginning of the industry two different binding materials have been used, viz.: lime and fire clay. The name "Dinas" was first used in the beginning of the 19th century by a Mr. Weston Young, who worked the siliceous materials of the Dinasfels of Wales into brick, using as a bond the underlying cretaceous lime. This process was kept a secret by the Young family until the middle of the century, and in the meantime another siliceous brick was put on the market in England, which was made by grinding and mixing the gannister rock of Sheffield with fireclay. This was called "Gannister" brick, and the name is still generally applied in England to such siliceous brick bonded with clay. The Germans soon began the manufacture of a clay bonded silica brick and called it "German Dinas," so we have in Europe the term "Dinas" applied to both lime and clay bonded silica brick. In this country we have never used the term Dinas. High grade silica brick bonded with lime are called "Silica," and the term "Quartzite" and "Gannister" have been applied to different grades of clay bonded brick.

In the manufacture of silica brick the best results have been obtained in the use of sedimentary sandstones and quartzites containing about 97 per cent of silica and 3 per cent of impurities. In the west, however, in Montana and Utah, crystalline quartz rocks are used. Attempts to use a too pure quartzite—99 per cent SiO_2—have not been successful. There is only one property or quality of major importance in selecting a material for the manufacture of silica brick, while there are two or three other minor ones. It must be remembered that silica brick expand on being burned in the process of manufacture, and are fired up to dimensions instead of shrinking to dimensions, as in the case of fireclay brick. It has been shown in testing different quartzites that they vary from 3.2 per cent to 23.5 per cent in volume increase in the first burn. The lowest figure of 3.2 per cent is for a very pure quartz, coarsely crystalline, which disintegrates to a fine powder on burning. The higher value of 23.5 per cent was for fine grained, hard, tough quartzites with about 3 per cent impurities and which remained firm and hard after burning. It is obvious that we want a material which does practically all of its expanding in the burning it gets before put into use. These quartzites which have a low volume increase in the first burn, change in volume slowly and continuously over a long period, and hence swell after being put in place in actual use.



Electric Carbon Resistance Furnace.

The physical condition of the crushed material is also of importance. Round grained sand cannot be used, as



Arsem Graphite Vacuum Resistance Furnace.

it will not bond properly. Even sharp grained sand is not good, because the size of grain is too uniform. A rock which grinds to splinters and particles of irregular size, which overlap and interlock makes a brick of the best structure.

According to the kind of brick being made, there is added to the crushed rock in making the mix, either 2 per cent of slaked lime or from 20 to 30 per cent of fireclay. The batch is ground and tempered in a wet pan and then molded by hand in a brick mold by what is called the "slop molding" process, the excess material being cut off at the top of the mold by a scraper. The brick are then dried on a drying floor or rack until they are hard to dent with the finger, when they are repressed. After the brick are thoroughly dried they are set in the kilns and fired to temperatures varying all the way from cone 9 to cone 18 in different plants. The temperature used depends on that required by the material to properly develop the bond and to secure the necessary volume increase, i. e., to bring the volume changes as near as possible to a condition of equilibrium.

Silica brick are chemically acid and are used not only in positions where an acid brick is necessary, but are yearly finding many other uses due to their high refractoriness, regular expansion and heat diffusivity and ability to carry loads at high temperatures without deformation as long as these temperatures are at a safe interval below their melting point. Silica brick are used in connection with silica sand mass in acid open-hearth furnaces; they are largely used in crowns of by-product and bee-hive coke ovens; in the glass, iron and copper melting business; and in some places even for boiler settings and fire box linings.

As we would expect from our knowledge of calcium silicates, silica brick have been found to have a well defined melting point. There is practically no softening or flow until the melting point has been reached, when it will suddenly fuse to a liquid of low viscosity. Mr. George Brown in load tests on silica brick made in the Bureau of Standards laboratory, has shown that they are not affected by the usual test of 50 pounds per square inch at 1350° C. nor even when the temperature was carried as high as 1470° C. This test was on a silica brick with lime binder. A silica brick with clay binder showed a small deflection under load of 50 lbs. at 1350°. Silica brick fuse or melt at about a temperature of 1750° C.

MAGNESITE BRICK.

Magnesium carbonate when calcined to the oxide is commercially known as Magnesite. Brick made from this material are very refractory, and probably the most valuable and economical refractory brick yet developed for use in the modern practice of metallurgy.

The highly refractory qualities of magnesite were realized as early as 1870, but repeated efforts to use it failed on account of the many difficulties encountered in calcining the crude magnesite and in developing a satisfactory physical strength in the burnt mass for hearths and in the manufactured brick. Five years ago no copper converter was lined with magnesite brick, and ten years ago there were but few basic lined open hearth furnaces. It has been only in comparatively recent years that manufacturers have learned how to make these brick firm and strong, and especially of sufficient density and bonding strength to stand pressure at high temperatures.

We have available two sources of raw material—the Grecian and the Styrian Magnesite. The Grecian material is very little used except for technical purposes, it being too pure (98 per cent $MgCO_3$), and too refractory to be suitable for commercial use. A small quantity of impurities is necessary to act as a flux in calcining the carbonate, and as the Styrian or Austria-Hungarian magnesite contains naturally the quantity of flux desired, no attempt is made to use the Grecian. The crude Austrian magnesite has about the following composition: $MgCO_3$ 90.0 per cent, $CaCO_3$ .5 per cent, Fe_2O_2 4.5 per cent, SiO_2 1.9 per cent, Al_2O_3 .3 per cent. There is no magnesite, as far as the writer knows, now being calcined in this country, although we have some undeveloped deposits in the western states. All of our magnesite is mined, sorted from impurities, and calcined in Austria before being shipped. It is calcined in a shaft kiln much like a lime kiln at about cone 18 or 1500° C. This calcined material, when we receive it, has about the following composition: MgO 85.3 per cent, Fe_2O_3 8.6 per cent, SiO_2 2.8 per cent, Al_2O_3 .9 per cent, CaO 1.12 per cent and CO_2 about .5 per cent.

The brick are manufactured by two processes. In this country either the fully calcined material alone, or in some cases, a mixture of 85 per cent hard calcined with 15 per cent of light calcined material, is ground and tempered in a wet pan, molded by slop molding, as described before, repressed and burned in the kilns. In Europe, a suitable bond, such as tar or a little refractory plastic clay, is sometimes added and the brick made by the dry press process, using a very heavy pressure.

These brick, on account of their great refractoriness and almost total lack of a binding material, must be carried to a very high temperature in burning in order to develop a bond and produce a strong brick. The Harbison-Walker Company burn their magnesite brick to cone 28, or about 1640° C., the highest temperature used in the manufacture of any ceramic product outside of electric furnace products.

Magnesite brick are chemically basic and are used in many basic metallurgical processes, as well as in many cases where a distinctively basic brick is not needed. In the basic open-hearth process of iron smelting, magnesite brick and grain magnesite mass has almost entirely replaced the oil standard dolomite for hearth building. All original hearths are installed with it even where dolomite is still used for repairing and patching. It forms hearths of maximum density, subject to minimum erosion by the metal, and is practically unaffected by slags. It further does not deteriorate on an exposure to the atmosphere when a furnace shut-down occurs, as is the case with dolomite under like conditions. The high refractoriness and long life of magnesite brick are yearly winning for them wider use in all kinds of smelting operations and in electric furnace work.

Like silica brick, they have a definite or well defined melting point and stand up under load at high temperatures to very close to their fusing temperature. In tests in the Bureau of Standards laboratory, magnesite brick have stood up under a load of 50 lbs. per square inch to a temperature of 1550° C., when the brick sheared off diagonally into two parts much like a break from a cold crushing test. There was no bending and but slight evidence of any softening at this temperature when the brick was examined after cooling. Magnesite brick melt at a temperature of about 2165° C., as determined by Dr. Kanolt.[1]

CHROME BRICK.

Of the neutral refractories, chrome brick are of the greatest importance in the metallurgy of iron, copper, antimony and tin. In the manufacture of these brick, chromite, a sesqui-oxide of chromium (FeO, Cr_2O_3) usually termed chrome ore is used. It is extremely refractory and practically neutral, which gives it its value. The natural chrome ore is mixed with a suitable binder, when necessary, such as fireclay or a mixture of low calcined MgO and $MgCl_2$, and manufactured by processes similar to those described for Magnesite brick. The chief use of chromite brick is as a buffer or separating course or lining between a basic bottom or hearth and acid or neutral wall and crown in order to prevent any reaction at high temperatures between the basic and acid materials.

In French antimony works they are used as a lining in the reduction hearth furnaces, and in the metallurgy of tin they are used for both bottom and sides of the hearth.

Chromite of a satisfactory quality for the manufacture of chrome brick is found in Greece and New Caledonia and some in California. It should not be too high in iron and should carry only enough clay impurity to enable it to bond properly. Its analysis should be approximately as follows: Sesqui-oxide of chromium, Cr_2O_3 38 to 40 per cent, Al_2O_2 24.5 per cent, Fe_2O_3 17.5 per cent, SiO_2 3.25 per cent and MgO 15.0 per cent.

Chrome brick under load test behaves very much the same as a magnesite brick. A sample under load of 50 lbs. per square inch stood up without signs of softening or contraction to a temperature of 1450° C., when it suddenly failed by shearing diagonally into two parts, as in the case of the test cited on Mg brick, but taking place at a temperature 100° lower. One first-class brand of Chrome brick examined by Dr. Kanolt was found to melt at 2050° C., which is also about 100° lower than the melting point of the MgO brick examined.

BAUXITE BRICK.

Bauxite is a hydrous oxide of alumina, $Al_2O_3.2H_2O$, chemically very inert, highly refractory, and of about the following analysis: SiO_2 4 to 7 per cent, Fe_2O_3 3 to 5 per cent, Al_2O_3 60 per cent and combined water about 30 per cent. The chief sources of the raw ore are Arkansas, New Mexico, Georgia and Alabama. The crude bauxite is washed and sorted to remove impurities, and then calcined to drive out its 30 per cent of combined water and reduce its shrinkage as much as possible. The washed and calcined Arkansas Bauxite will analize as follows: Al_2O_3 87.30 per cent, SiO_2 6.40 per cent, TiO_2 3.99 per cent, Fe_2O_2 1.43 per cent, and water .88 per cent, said to be mechanical or uncombined.

This material, though having many excellent qualities, has not come into very general use. The difficulty experienced in attempting to use it is to so calcine it as to entirely eliminate its excessive shrinkage. It is the history of many past attempts to use these brick in different parts of the country that they have continued to shrink in use at furnace heats to such an extent as to imperil the furnace. It is very probable, however, that in the near future this defect will be entirely overcome and bauxite brick will be used in many places where it is especially suitable. A superior grade of bauxite brick are now being made by the Laclede Fire Brick Co., of St. Louis, who have worked on this problem for many years. We have no tests on the load carrying capacity of bauxite brick at high temperatures. They melt at about 1790° to 1800°, where little clay binder is used in manufacture. Larger proportions of binder lower this melting point somewhat.

SPECIAL REFRACTORIES.

We need only mention in closing a few other special refractories that are being developed and are coming into use for special purposes. Natural occuring minerals, such as steatite, a silicate of Al and Mg; and cyanite, a silicate of Al of the general formula, $Al_2O_3.SiO_2$, are being studied and tested. Such artificial refractories as Carborundum, called a silicide of carbon or a carbide of silicon, and the Norton Company's Alundum, or pure fused Alumina, have quite recently aroused considerable interest and have found many important uses.

We are living today in an age of high efficiency—of constant improvement—all of which tendencies demand higher temperatures in nearly all metallurgical and chemical operations, together with more constant and regular operation of industrial furnaces, as well as larger output. It can be said to the credit of the refractory industry, that it has kept pace with fast changing conditions and demands for suitable refractory products, and has in many cases even anticipated these wants. Thirty years ago the refractories industry in the United States produced products to a value of only four hundred thousand dollars a year, while today the value of the annual output lies between fifteen and twenty million dollars.

The Article on Cheap Brick Houses promised for this issue, was delayed. It will appear in the June 2 issue and be well worth the waiting.

Technologic Paper No. 10, U. S. Bureau of Standards.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

Slow Advance of Fire in a Hoffman Kiln.

One of the subscribers to Tonindustrie-Zeitung, using a Hoffman kiln submits the following query to its Question and Answer department:

"In setting out our kiln we used soft burned brick in the firing flues and also in the bottom courses. Contrary to expectations the fire advanced more slowly than in cases where green brick had been used throughout. We are at a loss to explain this, especially since the burned brick used had never been removed from the kiln after their first burning and consequently were absolutely dry. In other respects the burn was satisfactory. The kiln has an overhead smoke flue."

In answering this correspondent, the following replies were given:

No. 1—The poor speed of the fire is due to something other than the use of soft burned brick in the firing flues. It is my opinion, supported by experience, that the use of soft burned brick as you mention do not retard the advance of the fire. The trouble may be due to cold air leaking in through the wickets which may not be sufficiently daubed. I have made a complete cycle of my kiln, each chamber being set as you mention, without experiencing any trouble.

No. 2—It has repeatedly been my experience that soft-burned brick, if reburned, require more fuel than do green brick. This is explained by the fact that the unburned article contains combustible organic material which materially accelerates the speed of the fire. On the other hand, a burned brick must be completely heated throughout, before it permits of further conduction of the heat.

No. 3—At one time I had occasion to reburn some soft-burned brick which had been exposed to the weather and consequently were thoroughly wet and smudged, necessitating reburning. When the fire reached those chambers containing these brick, I did not notice that the fire was appreciably retarded. In this case, however, the conditions of setting were just the reverse of yours in that green brick were used in the firing flues and bottom courses. If in your case, the fire advanced more slowly in those chambers set with soft brick, it can possibly be explained by the fact that perhaps your clay contains considerable combustible organic material, which ignites readily and thereby aids the advance of the fire. The burned ware, of course, does not contain this material and for this reason is more difficult to get up to red heat. I would try making another burn, using the same method of setting and burning and at the same time, carefully look after the operation of the kiln, for it is not entirely excluded that the slow speed of the fire may be due to other causes.

No. 4—Perhaps you are not setting the burned ware open enough. Ordinarily damp ware is set more openly while that thoroughly dry is set more closely, and it is possible that you are setting the dry burned ware too closely.

No. 5—I have had a similar experience reburning soft brick, the fire advancing with much more difficulty than in the case of green ware. This difficulty has generally been encountered where the raw material was a limey clay or shale. It is my opinion that the explanation will be found in the porosity of the burned brick, since these will not conduct the heat so readily. I recall a case similar to yours where the clay in question was a shale. The burning canal of the kiln was 321 ft. long and was of the 18-chamber type. An examination showed that the draft was sufficient and that the setting was O. K. A study of the burning operation showed that about 33 ft. were water-smoking, the burning zone including 100 ft., high fire 58 ft.; 84 ft. of kiln were cooling while about 26 ft. were being set. Immediately ahead of the fire I, of course, expected to find the kiln bottom hot. On the contrary, about 30 ft. ahead of the first row of firing holes I found the kiln at a beautiful red heat for a length of about 25 ft. This explained the poor progress of the fire. The clay in this case contained considerable pyrites and bitumen and of course the above mentioned 30 ft. of kiln length ahead of the fire was filled with this sort of material in a state of ignition. Yet when this combustible material had been burned out it was very difficult to get the brick up to red heat again. Under these conditions of burning the coal consumption was enormous, amounting to about 620 lbs. per M. brick. The daily advance of the fire was about 19 ft. By careful control of the combustion of this organic material, I was finally able to cause it to ignite simultaneously with the arrival of the high fire which resulted in an increase of the speed of the fire up to 35 ft. per 24 hours and a decrease in the fuel consumption to 440 lbs. per M. brick.

No. 6—The cause of your difficulty lies either in faulty kiln construction or a wet kiln bottom. Depending upon the size, temperature of burning, and extent of the period of operation of your kiln, the heat from it may penetrate down to a depth as far as 20 ft. or more. It follows, then, that moisture is drawn, by capillary action, from the ground beneath and around the kiln and enters into the flues as vapor, exerting harmful influence on the ware and retarding the fire. Surface water requires weeks to penetrate down beneath the kiln by natural means, but if an attempt at drainage is made by laying tile under or around the kiln, the water gets under much sooner. In the latter case, instead of drainage being accomplished, just the reverse takes place, the tile defeating the very purpose for which they were laid. In wet kilns, the bottom courses are set with burned brick, since their strength is not affected by the ever-increasing amount of moisture.

The water in the unburned brick is insignificant in comparison to that amount obtained from the ground around the kiln and it is my opinion that at the time when you used unburned ware in the firing flues and bottom courses, the weather conditions were more favorable than when you used burned brick for this purpose, obtaining unsatisfactory results in the latter case. Most people believe that a kiln bottom is wet only when water stands in the smoke and draft flues and that moisture is encountered only in the Spring season. They do not consider the fact that with time, the ground beneath the kiln is becoming heated deeper and deeper, thereby creating more and more surface presenting capillary action. The best proof of the truth of this statement is in the fact that, in the case of very wet kiln bottoms, the first cycle of the fire is much more rapid than the following ones since the heat of the kiln is not yet of influence upon the ground surrounding it. Poor draft and slow advance of the fire, soft burned ware and high coal consumption are the best indications that the kiln bottom is wet. Provide your kiln with suitable air insulation and you will find that the speed of the fire will be greater.—C. S. Kinnison.

NEW TECHNICAL PUBLICATIONS.

The Department of the Interior (Bureau of Mines) has published the following bulletins and technical papers, all of which are ready for distribution, and can be obtained wthout cost, by applying to the Director of the Bureau of Mines, Washington, D. C.

Bulletin 42. The Sampling and Examination of Mine Gases and Natural Gas, by G. A. Burrell and F. M. Seibert.

Bulletin 68. Electric Switches for use in Gaseous Mines, by H. H. Clark and R. W. Crocker.

Technical Paper 57. A Preliminary Report on the Utilization of Petroleum and Natural Gas in Wyoming.

Technical Paper 69. Production of Explosives in the United States during the Calendar Year 1912, compiled by A. H. Fay.

Technical Paper 71. Permissible Explosives Tested Prior to January 1, 1914, by Clarence Hall.

Bulletin 58—Fuel Briquetting Investigations, July, 1904 to July, 1912, by C. L. Wright; Bulletin 59, Hydraulic mine filling, its use in the Pennsylvania Anthracite fields, a preliminary report, by Charles Enzain; Technical paper 39, The inflammable gases in mine air, by G. A. Burrell and F. M. Siebert; Technical paper 58, The action of acid mine water on the insulation of electrical conductors, a preliminary report, by H. H. Clark and L. C. Ilsley; Technical paper 61, Metal mine accidents in the U. S. during the calendar year 1912, compiled by A. H. Fay; Technical paper 66, Mud-laden fluid applied to well drilling, by J. M. Pollard and A. G. Heggem.

Scum Prevention.

Every writer on scum or efflorescence recommends carbonate of barytes, and gives some method of using this very valuable aid to a better product. The Roessler & Hasslacher Chemical Company, 100 William St., New York, has issued a circular explaining the use of R. & H. precipitated carbonate of barytes that should be studied by every clay products manufacturer who finds that his product shows any trace of the objectionable "whitewash" either immediately after burning, or when it has been put into use. The circular, in part, states:

Brick and terra cotta manufacturers are familiar with the white scums and discolorations which the fired material frequently shows on its face, a defect which has been traced to salts, soluble in water—mostly sulphate—contained either in the clay itself or in the water used.

The white deposit left by evaporation of the water, is scarcely or not at all noticeable on the brick when air dried. If the latter is fired at a medium temperature, the deposit may often be removed by water or diluted acids. Not so after firing hard. The white substance will then prove to be insoluble and firmly fixed in the clay particles.

To overcome this action of sulphate of lime or gypsum, the impurity most frequently occurring, very satisfactory results are obtained by the addition of R. & H. precipitated carbonate of barytes (when mixed with the clay in such proportions as experience shows necessary) which will combine with the sulphate of lime or gypsum, when brought together in the presence of moisture and heat, causing a chemical change to occur wherein are formed insoluble sulphate barytes and insoluble carbonate of lime, thus rendering harmless the cause of the scum.

The amount of carbonate barytes needed to prevent this scumming or discoloration depends altogether on the amount of impurities contained in the clay and water used, which can easiest be ascertained by analysis. For those who prefer to make trials, we would suggest the following experiments.

Prepare your clay in the usual manner, with usual clay and water, and weigh sufficient clay to make 10 to 15 brick, divide this in five lots of equal weights, each enough for two or three brick and add carbonate of barytes to each lot (by sprinkling it evenly over and mixing it well) in the following proportions: To sample lot, 1, add carbonate of barytes in proportion of 1 oz. per 28 lbs. clay; to sample lot, 2, add carbonate of barytes in proportion of 2 oz. per 28 lbs. clay; to sample lot, 3, add carbonate of barytes in proportion of 3 oz. per 28 lbs. clay; to sample lot, 4, add carbonate of barytes in proportion of 4 oz. per 28 lbs. clay; to sample lot, 5, add carbonate of barytes in proportion of 5 oz. per 28 lbs. clay

Then treat the material in the usual way, and mark the different lots 1 to 5 before they go to the kiln. As the brick are taken from the kiln, their appearance will at once show within which limits the necessary quantity of carbonate of barytes is. For instance, if lot No. 2 is not quite free from scum, and No. 3 is free, but not so good in color as No. 4 or No. 5, then the quantity of carbonate barytes required would be that used for No. 4 or No. 5. Once the necessary quantity is ascertained matters can be simplified by figuring out the requisite amount required per truck or barrel load.

It is essential that to insure thorough and complete action the best quality of finest ground carbonate barytes should be used.

Failure of Concrete Telegraph Poles.

Among the many claims made on behalf of concrete are the confident predictions that this material will eventually entirely supplant wood for such purposes as telegraph poles. It is interesting to see how practical experience agrees with these claims. In a stretch of twenty miles in the vicinity of Mount Holly, N. J., there are 52 concrete and 780 wooden poles. The concrete poles were scattered among the wooden ones with the idea of getting data on the way they would stand under extraordinary conditions. During the blizzard of the first of March last, of these 52 concrete poles and 780 wooden poles, 25 concrete and 43 wooden poles suffered some injury, many of the former being snapped completely off. In other words, nearly 49 per cent of the reinforced concrete poles proved a failure, while only 5½ per cent of the wooden poles gave way. It would be interesting to find some one use for concrete where it measures up to the claims of its advocates.—Stone.

A New Segment Sewer Pipe

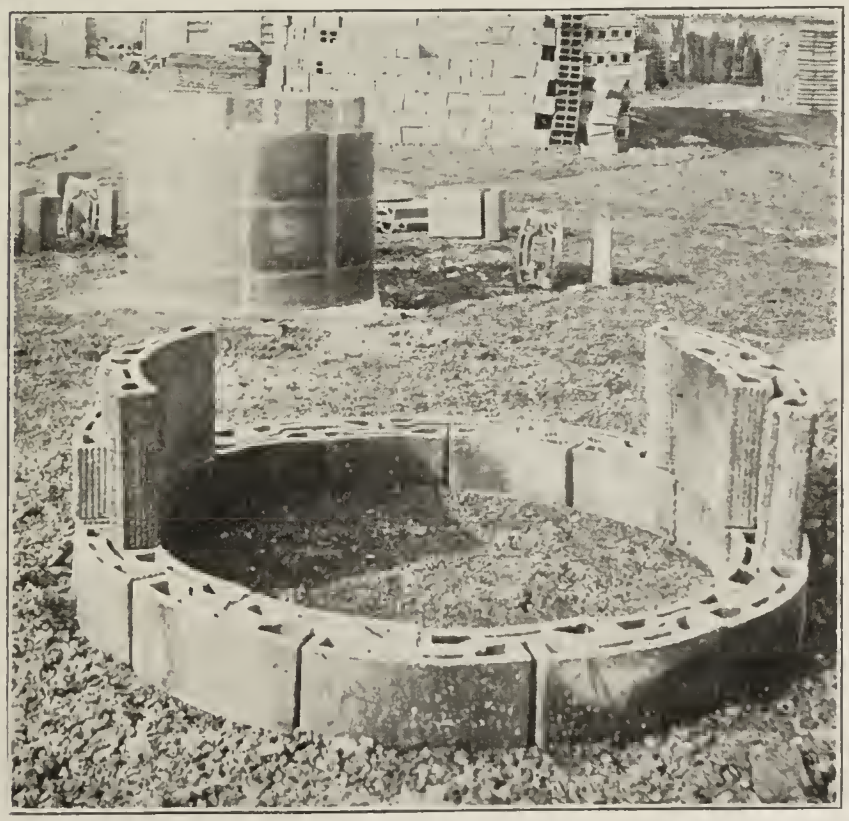
ANOTHER contender for patronage in the world of hollow clay ware was introduced May sixth, when the National Fireproofing Company demonstrated its new segment sewer pipe to a number of engineers, at Columbus, Ohio. The Natco people expect to increase their output of hollow ware, through the manufacture of this improvement in sewer construction.

SEWER construction may be revolutionized as the result of a test made May 1 at Columbus, Ohio, by the National Fire Proofing Company, in the presence of a large number of engineers, contractors and builders of Pittsburgh, Cincinnati, Cleveland and Detroit.

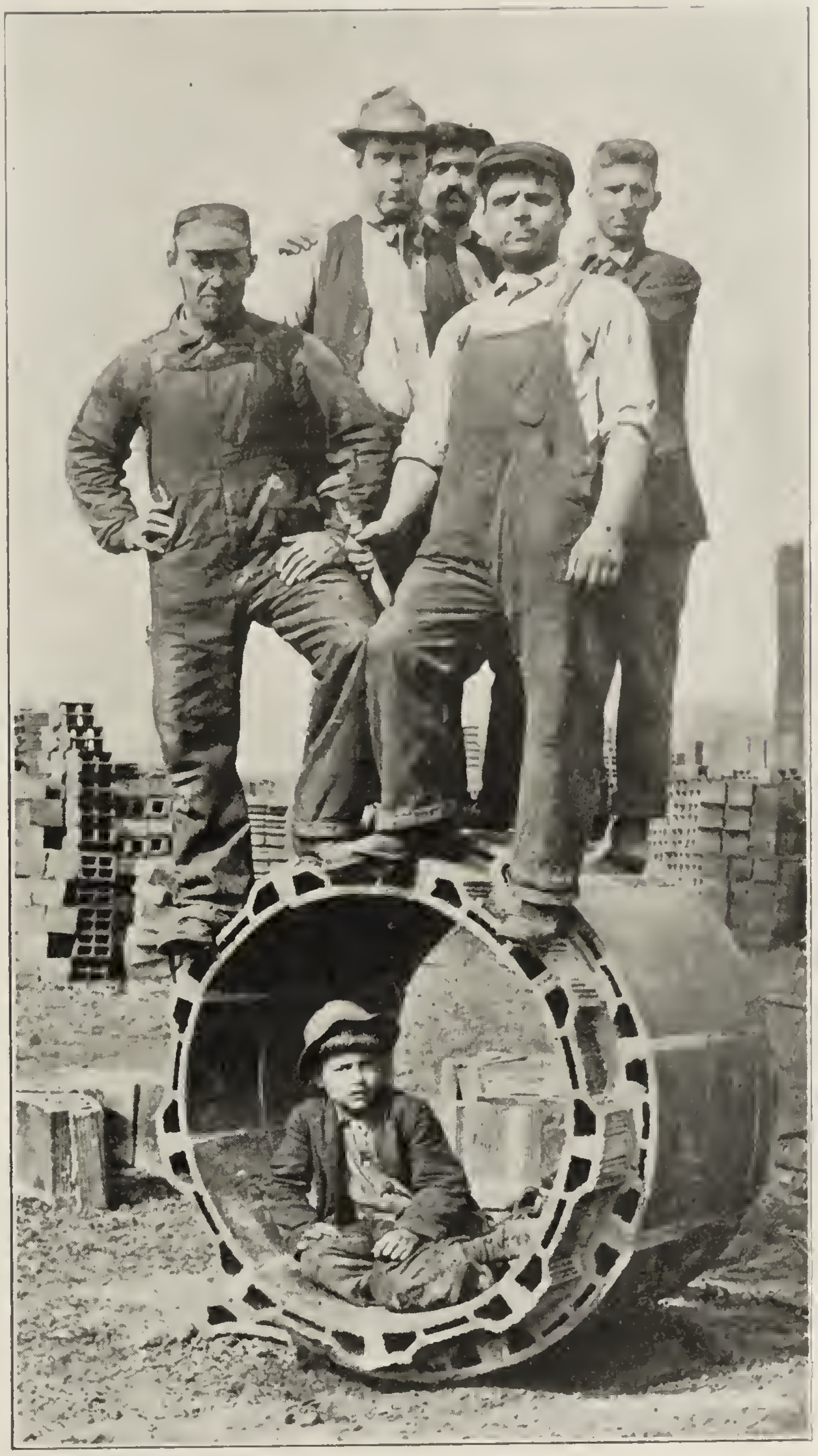
Ordinary glazed hollow tile lock joint blocks of special pattern were used. The test was so satisfactory that the National Fire Proofing Company has decided to add a new department to its clay manufacture.

The size of the sewer built and tested was 48 inches in diameter and a much larger type than is produced in pipe, but the segmental block variety can be built any size desired. The section of the sewer constructed stood a test of 20,000 lbs. of cement in bags and showed no strain whatever under this pressure.

The pounds pressure per lineal foot was 3,090 and over 800 pounds pressure per square foot. Engineers pronounced the test satisfactory, at least from a pressure standpoint. The tile being salt glazed, it is asserted resists acids and sediments that frequently accumulate in sewers.



Method of Building New Hollow Tile Block Type Sewer.



New Hollow Tile Sewer Section Completed.

It is believed that this new type of sewer block is destined to replace the ordinary brick or cement sewer. The tile, being 12 to 18 inches long, can be set much faster than brick, and in the item of labor alone will greatly reduce the cost of construction.

In employing this method of building it is necessary to make a template of the diameter of the outside circle of the sewer so that the bottom or lower part of the ditch can be excavated to the proper radius to receive the outer section of the sewer pipe. This center section is placed on the bottom of the sewer or excavation, just the same as if it were to be paved with brick or other material, and cement is applied between the joints.

A round center is inserted in the lower half, to arch the top of the sewer just the same as an ordinary arch center would be placed. The center can be removed from one section to another during the course of construction. Patent rights for the block have been applied for.

The block is similar to that used in the building of silos and it is believed that the new type of block will be a much larger tonnage producer, as the field for its use is said to be unlimited.

The Superintendent

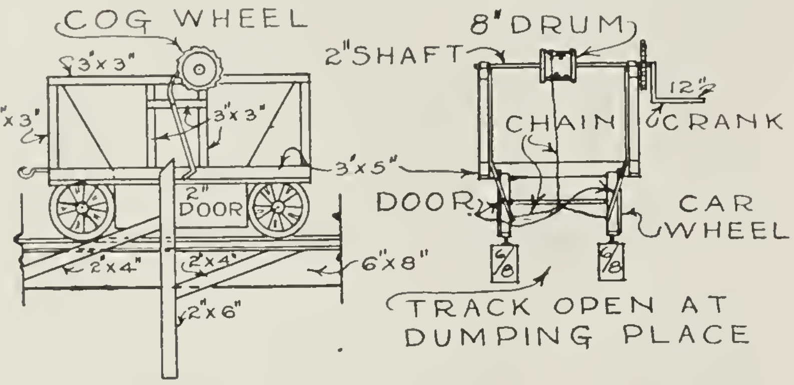
A Department Conducted for the Interchange of Ideas in Methods of Manufacture

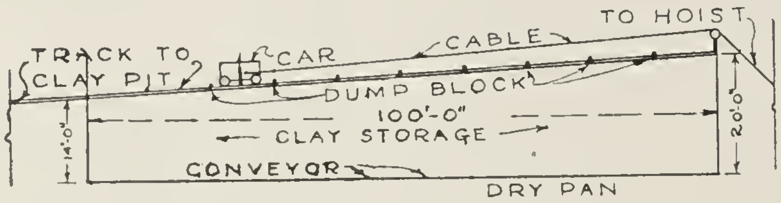
A special prize of $5 is offered in each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?

This Idea Wins First Prize

An Automatic Bottom Dump Car.

The following idea and the sketches that accompanied it won the $5.00 prize for this issue. It describes an automatic bottom dump car that can be made at almost any brick yard, by taking an ordinary brick car, and moving the wheels out, as close to the ends of the car as is possible. A piece of 3x5 oak is bolted on top of the frame on each side, which will raise the doors high enough to clear the ties on a 24-inch track. If the track is wider than 24 inches the bottom will have to be raised accordingly. The box should be made of 1-inch oak, nailed on the inside of frame, so the inside of the box will be smooth. It should lap on the lower frame about 1½ inches, so that the doors will fit up under it. Ordinary strap hinges can be used for the doors, but good strong, gate hinges are preferable. They should be turned in opposite directions, to keep the doors from slipping off. The crank should be made to slip off, so that it can be made for any number of cars, by leaving it at the foot of the incline.—J. E. Archbold, R. F. D. 3, Waynesboro, Pa.





Manganese in Clay Products Manufacture.

Black oxide manganese is used in the manufacture of brick, terra cotta and other clay products, the powdered form being employed to darken and color the body and the granulated to produce a speckled effect. Where reliable, uniform qualities are used, the effects secured are very satisfactory, and not at all expensive.

The Roessler & Hasslacher Chemical Company have long made a specialty of manganese produced from high-grade Caucasian ore, and taking this as a base, the following methods of preparation are standard and the result of observation made under working conditions.

Taking one part (by weight) of powdered manganese, to nine parts (by weight) of clay, temper together with just sufficient water to produce a slip which will permit it to easily pass through a sieve with one-quarter-inch holes.

This mixture or stain will be black in color and the proportion for future use can be ascertained by allowing the moisture to evaporate from one pail full and when dried, weigh the mass and by dividing by ten will give the amount of manganese in slip while in a liquid condition.

The slip or mixture should be used in a liquid condition as it will permeate the mass more thoroughly and on account of its black color can easily be followed to be sure it has been properly mixed with clay. It should be added to the usual brick clay in quantities according to color effect desired.

The above prepared manganese stain is used in liquid state and pugged for soft mud brick or ground and pugged for stiff mud brick or ground dry and screened for semi-dry press, by adding the necessary proportions to the clay before it is pugged.

For dry press brick, prepare manganese stain same as for soft mud process, dry and grind to a powder. We would advise the mixing of the ground clay and stain thoroughly together, screen and put through mixer a second time before feeding to machine to get the best results.

The proportions of stain for desired shade of brown should be ascertained by a few trials with the clay used at each plant and for a basis for experiments we suggest the use of 20 pounds of manganese, dry, weight to 80 pounds of crude clay and after burning in kiln it can be readily seen whether desirable to increase or decrease the amount of stain.

Powdered manganese is especially adapted as it contains some fine grains which after burning improve the softer shades of general color by the presence of some small specks. A more speckled effect is obtained by using the granulated manganese.

Gray brick are made of light color buff burning clay and undergo the same treatment as to make the brown brick. Powdered and granulated manganese is recommended for the same reasons as mentioned under brown brick.

Speckled brick are produced through the use of granulated manganese which is furnished in different granulations or grains to give various sized specks in the brick.

To produce speckled brick a change is made in the preparation of the manganese stain. Take one part (by weight) of granulated manganese and mix thoroughly together with nine parts of buff burning clay with just enough water to make a soft mud or daub. In this manner the granulated manganese will be held in suspension and avoid settling.

As in the other methods it is recommended that a series of trials be made with sizes of granulation wanted to determine the proper proportions to be used to get the desired effects. We would suggest beginning your trials on a 2 per cent manganese basis by mixing one part of prepared speckled stain with four parts of buff brick clay and by making a number of brick of the varying proportions you will be able to judge the necessary amounts.

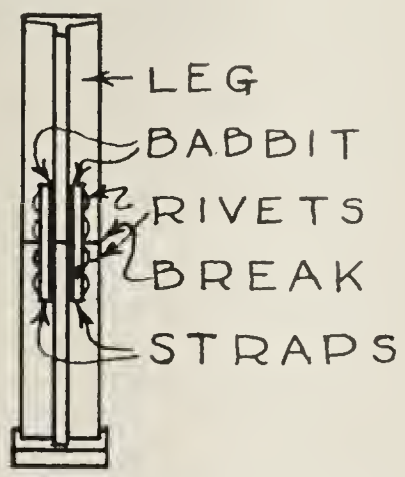
In making the various trials necessary to ascertain the amount of manganese to be used to give the desired effect would point out that the mixing and preparation can readily be done by hand at a minimum expense in quantities sufficient for just a few brick of different proportions. After firing in the usual manner the results will show the proper mixtures.

It is important to remember that the heat at which the brick are burned has a large effect on the staining powder of the manganese as the higher temperatures tend largely to develop the color.

The experienced brickmaker can readily tell from a few trials where to place the brick in kiln and proper firing conditions to get the best results.

Splicing Broken Castings.

In splicing the leg of a cast molding machine frame, I hit on a good, quick, accurate method that many superintendents would doubtless like to know about. Instead of worrying about forging my splices to the exact form of the leg, I drilled loose holes first, left the splices rough and poured in Babbitt metal to make a perfect bearing. The job looks good and is strong. Molds for babbitting or for molten lead are easily made from putty.—N. G. Near.



A Clay Gathering System.

The system shown in the accompanying illustrations has been adopted by the writer to suit existing conditions in one or two plants in the West and in several in eastern Canada. In every case it proved successful and a great money saver. At the last plant, an ordinary sized horse scraper, fitted with the cross-bar shown in Fig. 1, furnished sufficient clay for 40,000 brick a day, with one man only in the pit and one man at the hoist. This latter man attended to the tempering of the clay as well. His position is shown in Fig. 2.

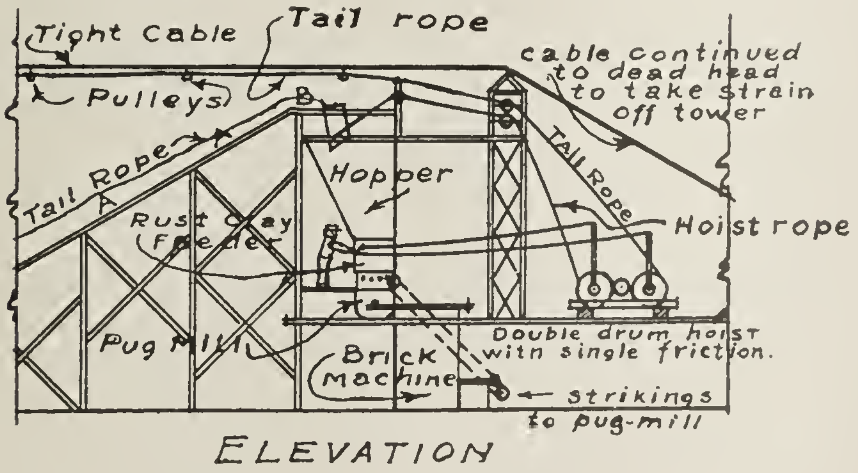


Fig. 1.

The hopper had a capacity sufficient for a half day's make, which allowed time to change the movable snatch block and post in pit, without any delay or night work. The two illustrations explain the layout—the only departure being the double drum, which was designed by the writer and built by Merrs Bechtels, Ltd., of Waterloo, Ont. This drum works to perfection.

The track "A" is built of 3-inch planks, with 3-inch by 14-inch plank siding, on top of which is screwed a 3-inch by ½-inch iron plate, to engage the bar on the scraper. This track at "B" is continued over the hopper, and, as the scraper reaches this point, it dumps automatically and the scraper is suspended in position by the bar. At the pit end, the track "A" is curved as shown, to guide the scraper in. This outfit, together with the tailings elevator shown at lower right-hand corner in Fig. 2, which takes all of the strikings from the molder and any spoiled brick directly back to the pug mill, is a particularly clean method or system.

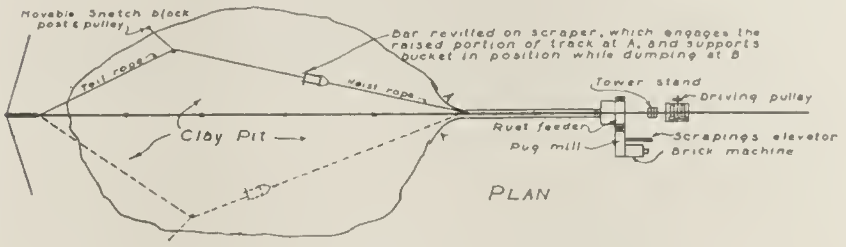

Movable Snatch block post & pulley
Bar revitted on scraper, which engages the raised portion of track at A, and supports bucket in position while dumping at B
Tail rope
Hoist rope
A
Tower stand
Driving pulley
Clay Pit
Ruet feeder
Scrapings elevator
Pug mill
Brick machine
PLAN

Fig. 2.

There are no cars, tracks, switches or any other trouble makers to use, and anyone situated near a tramway system can get sufficient cable at very little cost. Then sufficient hoist rope (I use ⅝) to reach the full limit of the clay pit, and double that length of ½-inch or ⅜-inch tail rope. The size of the scraper depends upon the outfit required and the speed at which the drum is run. The writer has, so far, used the large size, ordinary scraper or "slusher," as it is called in some districts.—G. S. W.

Wants a Cheap Clay Digging Machine.

One of our readers wants to know if there is any kind of a clay digging machine which will work on top of the clay bank, dig to a depth of 10 to 12 feet deep, fill cars on top of clay bank and clean up field of clay as it goes. He has three different strata of clay in bank of 12 feet, each stratum shrinks different and takes a different degree of heat to burn, and needs a good mixture. He has water and quick-sand at the bottom of the clay pit, so he cannot set any machinery at bottom or even lay track very well. He says that it takes three teams to gather enough clay to make forty thousand brick per day, which takes about 90 yards of loose clay to make forty thousand stiff mud brick. A drag line steam scraper will do this very nicely, but the cost is too high for a small brick maker. "If somebody will get busy and build a clay digging machine for about $2,500," says our correspondent, "he will help the poor brick maker out of trouble, when he is working in soft clays and flat clay fields. There would be a large demand for this type of a machine."

A Convenient Peep Hole.

An easy way to make an effective and convenient peep hole for ascertaining the heat of the kiln can be made in the door by inserting a 3-inch ring pipe on a level with the draw trials. If pyrometric cones are used, they should be placed in the immediate vicinity of the draw trials, so that all are in the line of vision. A loose clay stopper is easily made, which is to be inserted in the pipe. This does away with the stopper brick, which is cumbersome to handle and never exactly fits the hole.—D. W. J.

Increasing Capacity of an Up-Draft Kiln.

Some time ago, we were up against the proposition of too little kiln-room. The kilns we had were of the up-draft type, with 24 benches to each kiln and we found that, by dividing each kiln into three sections of 8 benches each, and setting a one-brick tight wall between them, we gained in capacity.

When the first section is set, watersmoking is begun. The second section is then set, and watersmoking started about three days after the watersmoking of the first section began. The third section follows at the same interval.

The period of watersmoking is six days. Thus, as the heat is beginning to be raised on the first section, the second has been watersmoking three days, and the third section is starting to watersmoke.

The burning period is fourteen days. When the first section is burned off and cooled, the second section is burned and ready for cooling, and the third section is still under fire.

By using this method we are able to draw brick from the kiln one week earlier than we did when we waited to set the entire kiln. It costs no more to burn, we work our machine gang with greater regularity, and while we have not figured the amount of increase exactly, we know that the kilns turn enough faster to warrant our saying that the dividing walls have been of much greater value to us than the same amount of brick would have been, if used in the erection of one or more additional kilns.—A. Barrow, Weyburn, Sask.

Are You Going Up or Going Down?

There is no such thing as standing still. We are either going up the ladder or going down. In which class are you? The man who has not the courage to ask himself this question and to seek a correct answer is on dangerous ground. It is better to know the truth, even though it is against you, than to remain in a rut until it is too late to get out. It is not necessary to be a genius to be going the right way of the road. Patience, diligence, preseverance, regularity and economy of time will always win. These are qualities which all can possess, and the acquiring of them is a small price to pay for success.—Exchange.

Teaching Brickmakers How to Use Brick

By William A. Butler

THERE are many places in and around a brick plant where brick could be used to advantage, but where cement and concrete is all too frequently used at present. In all underground work, such as flues and foundations, good, hard brick laid in strong cement mortar will answer every requirement of compression and strength, being amply strong for most machine foundations.

In special cases, cement and sand only should be used, and the mass should be kept wet for some days after it is poured, as the setting and proper hardening of cement depends on the amount of water it can absorb after the first or "initial" set.

I have never seen an old brick building torn down, that I did not notice that the best brick work, or at least, the hardest mortar, was found in the basement, or the foundation. This is due, to some extent, to the natural laws of gravity, whereby the water incorporated in the brick work gradually descends to the lower brick, the clay and loam resting against the foundation holding the water in the wall, and preventing its escape by evaporation.

There may also be something unexplained in the kinetic theory, whereby each atom of lime in the mortar attracts atoms from the soil—atoms that aid the hardening process in the mortar.

Be it as it may, it is worthy of notice that where a broken water spout has allowed rain water to be precipitated on a brick wall, the portion so wetted is twice as strong as any other part of the wall.

A brick wall that was built with common lime and sand mortar, in a garden that was wet at least once, daily, hardened to such an extent that an expert would not believe but that a liberal quantity of cement had been used.

The time to give the brick a good soaking is *after they have been laid*, according to my own personal observation. Admitting that there may be a little advantage in having the brick slightly wet *before* it is laid, it is certainly unwise and inexpedient to have them *too wet*. In a dry climate, a sprinkling system, whereby water could be showered on the brick work after working hours, would insure the best results.

I have seemingly digressed from my subject, in order to show the beneficial effect of having brick work kept constantly wet, which seems to be the primary objection to using it for underground work.

I have in mind two tall chimneys in San Francisco, which I planned and built before the earthquake of 1906, and which, without any repairs, are still standing. Their foundations, from the ground up, are entirely of brick, and no cement was used below the ground. The cracks that showed after the 'quake were more than half way towards the top, where the brick work had a tendency to dry out. The amount of brick used in each chimney was 85,000 and the approximate weight was 252 tons. The base was 12 feet square, allowing one-and-three-quarters tons for each square foot. The foundation offsets were in double courses, which, in a batter, would be equivalent to four-and-one-half inches per foot.

The reader will doubtless agree with me, that the best part of this brick work must have been that which was below ground, for it carried more than 250 tons, *rocking*.

As to the comparative cost, with concrete, figuring brick made on the yard and costing $4 per thousand to make—and with labor and mortar at $5 per thousand brick laid—the cost per cubic foot is about 19 cents. Compare this to the cost of concrete construction, with forms and wires, and, in all probability, some reinforcing, and you will not find the economy on the side of concrete.

Yet, on some brick yards, you will find driers built entirely of concrete, despite the fact that it is claimed that concrete increases the scumming qualities of the clay that is to be dried.

For sentimental reasons, as well as economic, concrete is the last material that should be used on a brick plant.

Putting it Over on the Cement Man

This is Only a Rather Short Story, But it Carries a Long Moral for the Brickmaker

By Carson J. Sink

HEAD Burner Pulveriser did not become blue when the news was imparted to him. No. On the other hand, he laughed until the echoes filled the brick-yard office to overflowing.

"I fail to see the humor," returned Proprietor McKiln, placing his feet on the roll-top desk. "The city voted a $20,000 bond issue to erect a new school-house of reinforced concrete. That means we will not land one cent of that $20,000. If you are not careful I will send you through that brick press and squeeze out some of that good nature of yours."

This remark did not suppress the brick humorist.

"You see, boss," returned Pulveriser, "I have a scheme up my sleeve. It took me months to think it out. To-night at the school board meeting, when final action is taken on materials to be employed in the new structure, I will spring my surprise. And I'll bet a year's subscription to 'Brick and Clay Record,' that we will have to furnish all the brick for a brick school house. If I fail, send me through a wet clay grinder and pay part of the liability insurance to my window."

"I will," replied Proprietor McKiln. "You seem so all-fired confident, that on the other hand, if you are successful, I will raise your salary to $1,200 a year."

"Thanks. Now you attend to that wash of clay to tighten the crown of No. 3 kiln, and I'll saunter home to map out the final points of my plans. Good-bye."

"So long."

Pulveriser hurried to his paid-for brick residence. En-route he passed the home (also brick) of Foreman Higgins and stopped a moment to cheer up Mrs. Higgins and to tell her to cut out high-cost-of-living worry, as there was plenty of work ahead for five months to come.

This being done he gained his own home where he closeted himself for a certain time to place the few remaining frills upon his scheme. Then at the usual time he hastened to the city hall where the school board was in session. He found Mr. Con Krete already engaged in talking cement to the board.

Tiptoeing into the room, Pulverizer took a seat, and listened to the cement man tell about concrete's "longevity," its "cheapness," and its "durability."

President Judson arose to his feet.

"Have you any remarks to make," he said, addressing Pulverizer. "We should be glad to hear anything about brick you see fit to favor us with, but I must say candidly to you first, that while the verdict of the board is for cement, we will give ear to anything you may say."

Pulverizer got up. He was calm, collected and confident.

"Gentlemen," he began. "After listening to my esteemed contemporary, I will not bother you with needless arguments and generalities. Why? Simply because results and examples already existing bear more weight with thinking men than mere words. I could talk to you all night on the efficacy of burned clay products and their superiority over cement; could put you next to enough dope relative to the durability, cheapness and desirability of my product to poison you against that man's material but I will not resort to that. What I have, though, to champion my cause is this."

And he here produced from an inner pocket a slip of paper containing seventy-five names.

"Now, gentlemen," he said, unable to suppress a smile, "I have compiled a list of all men connected with our brick-yard and this gentlemen's cement works. Those employed at our establishment, live in BRICK houses. They know the intrinsic value of brick, the proven worth and back it up by living in brick houses. But this is not——"

"But how about the cement employes and employers?" Broke in Mr. Con Krete. "Tell us about them."

"All your force also live in brick houses except yourself. On your frame house there is a heavy mortgage, but I will not count that against us. That encumbrance shows cement to be an unprofitable thing to deal in.

"And, gentlemen," he continued, turning to the august body of educators. "If workmen all live in houses built of the best material—brick, why can't the unsuspecting, innocent school children be housed by the same dependable material, instead of subjecting them to possible injury by placing them in a concrete building which is liable to collapse with fatal results to the children?

The members were all swept off their chairs at this new and startling revelation. But President Judson, regaining his senses, sprang to his feet.

"All who favor brick as a material," he cried, "instead of cement in the new school building, say I."

"I, I, I, I, I, I, I, I," came the response.

"Contrary, No."

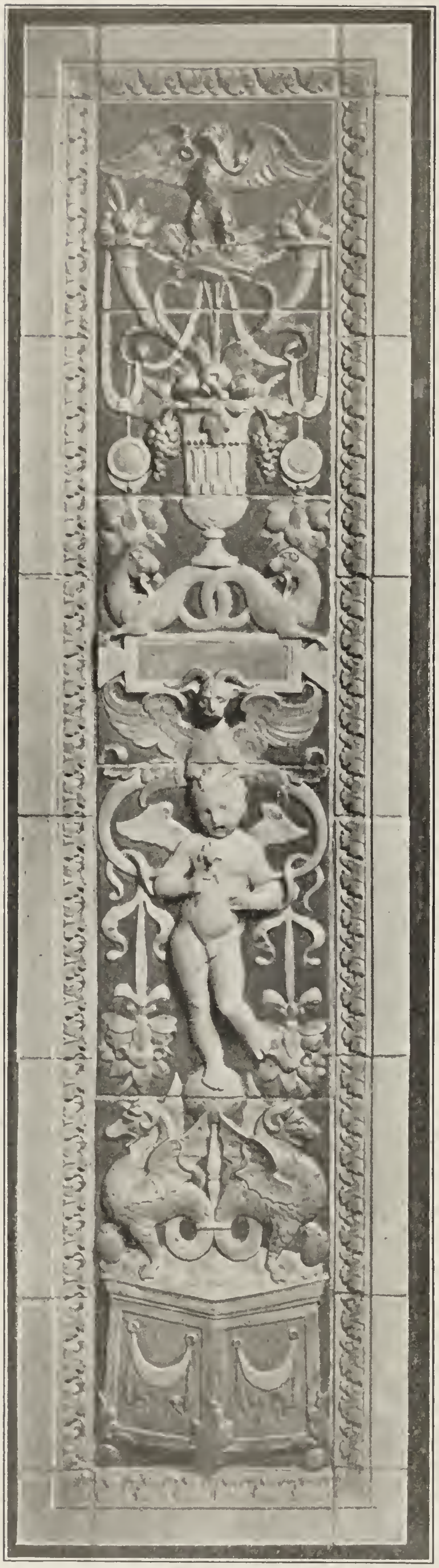
There was a profound silence.

"The ayes have it," decided the president.

MORAL—Brickmakers should live in brick houses.

And the school was built of brick.

Burned Clay Decoration



One of the Rookwood Pottery Panels in Lord & Taylor's Cincinnati Store.

The Growing Use of Burned Clay for Interior Decoration is a Source of Satisfaction to Every Man Connected with the Industry. It opens to the Clayworker a Field wherein He can give Full Scope to His Artistic Knowledge of Coloring and Design, and to Build into Imperishable Walls of Clay, the Aesthetic Thought and Skillful Workmanship Heretofore Dedicated to the Manufacture of Smaller Examples of the Potter's Art.

EVERY detail of the modern department store is studied with a view to inducing sales. A false note in color, a lack of harmony in any detail of the interior decoration, has its effect upon the earning power of that part of the store in which the fault occurs. The fact that the New York City architects for Lord & Taylor's Cincinnati store were willing to use Rookwood Pottery to line the flower-shop in that great establishment, shows that burned clay is gaining ground in a sphere that is strongly influenced by the Eternal Feminine.

THE GREAT hold that burned clay is taking on the popular mind is shown vividly in the ever increasing amount that is being used in buildings that cater almost exclusively to women's patronage, and where "atmosphere" is coined into the gold and silver of the realm. A few years ago an enterprise like the new Lork & Taylor store in Cincinnati, Ohio, would have worked out a decorative scheme that was soft and silklike, betokening the supposed daintiness of the shopper.

The "captains" of the dry goods industry realize the importance of harmonious effects in their shops. Every decorative scheme must work with the one to which it is adjacent. No violent contrasts of color nor of material are tolerated. To "jar" the sensibilities of a shopper might lose a sale. A thousand "jars"—a thousand sales, and so on.

So it was in no experimental way that Lord & Taylor put Rookwood pottery in their great dry goods "emporium" in Cincinnati. No chances were taken—the popular mind had been educated many months—nay years, before. But the use of burned clay for interior decoration in dry goods stores stamps it, as never before, with the seal of popular approval. Here, popular approval is a commercial asset to the shopkeeper, and he makes haste slowly.

The illustrations given are those of the Rookwood pottery in the flower shop. A space measuring about 15x30 ft. is given over to this department and the whole of it—floor, walls, ceilings and columns—has been finished with some of the finest work ever turned out by the famous Rookwood pottery in Cincinnati, which is saying a good deal. This particular produce is known in the company's nomenclature as architectural faience, and its effectiveness could hardly be better demonstrated than in this beautiful room, which is bright with every color, the pottery matching the brilliant tones of the flowers.

The general color tone is a soft gray. The ceiling is finished in six-inch tiling of this color, and the walls, in part, and floors are also covered with a gray tile. A number of beautifully-modeled pilasters, in a massive but graceful design, fill in one side of the room, serving to mark off the compartments in which the refrigerators for the cut flowers are kept. These pilasters are about 7 ft. 6 in. in height, and form a striking architectural feature of the room.

Probably the most conspicuous piece of artistic pottery in the entire room, however, is the big heat grill in the center, at one side, which serves

in a New Field

THE Architectural Faience used in this remarkable work is of a soft gray color, the ceiling, walls, columns, pilasters and floor all carrying this general tone. The panels are embellished, however, with greens, reds, blues and purples, carrying the brilliant hues of the flowers that will be offered for sale in this, the most beautiful flower-shop in the world.

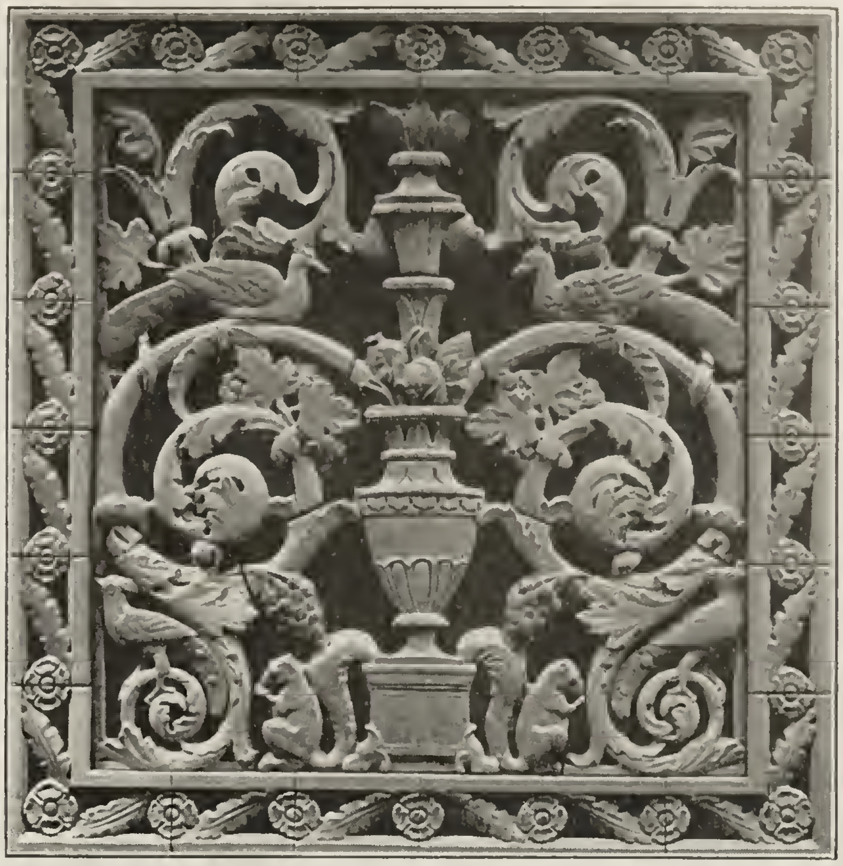
the same purpose as the ordinary iron affair, with the advantage of being a good many times better looking. It measures about 64 in. long by 50 in. high, and is surrounded by a molded border of elaborate design, which makes it seem even larger, so that it apparently occupies most of the space from the floor to the ceiling, which is 8 ft. 6 in. in height.

The grill itself, however, is an elaborate piece of work, turned out by one of the best artists employed by the Rookwood company. In harmony with the purpose of the room—that of housing flowers—it bears as its central figure a graceful urn, the space being filled out by conventionalized vines, leaves and bunches of grapes, with figures of birds and squirrels on both sides of the central figure. A design of leaves and flowers forms a border between the inner and outer squares which compose the grill. These squares were made up in 8 in. sections, the remainder of the design being handled in convenient sizes.

A panel beside this grill, of the same height, but reaching from floor to ceiling, the grill beginning a foot or more above the floor, is also a fine piece of work.

All of this special molding, including the grill and its border and panels, the pilasters, and, in fact, everything except the 6 in. square tiles which are used in the ceiling and the tiles of the floor, was original work, turned out by the pottery company for this store. In fact, as may be gathered from the illustrations, it is of high artistic worth; but the beauty of the coloring, which is one of the most attractive features of the work, cannot be gathered from photographic reproductions. Natural colors are reproduced with fidelity wherever the design calls for them, rich blues, greens, reds and yellows, with more subdued tints, being used liberally.

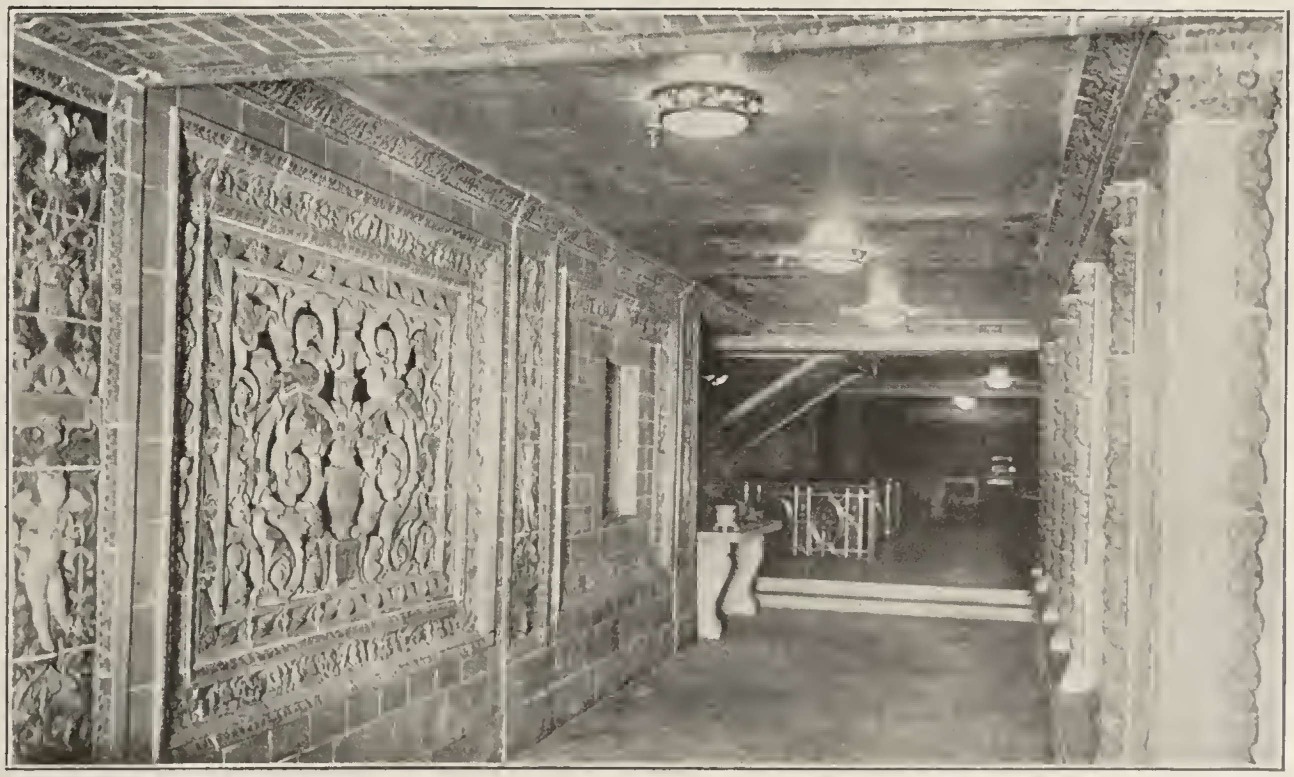
This is also true of a fountain, yet to be installed, which in all probability will be the finest work of the lot, from an artistic standpoint. The seated figure of a nymph, about two-thirds life-size, with a satyr playing on his pipes, will be the principal features, while the background, in the fresh colors of Spring, will set the picture off fittingly. The general color will be a soft gray, harmonizing with the rest of the pottery decorative work. This fountain has been practically completed by Clement J. Barnhorn, the Cincinnati sculptor, head of the Art Museum school in that city, but has not yet been installed in the store.



The Heat Grill in the Florist Shop De Luxe. This Grill Is One of the Finest Examples of Rookwood Pottery in America.

There is still other Rookwood work in the building, but the flower shop is the real triumph of clay in the building, because, as stated at the outset, no other material is used in the finishing.

Starrett & Van Vleck, of New York, are the architects who designed the building, and are therefore responsible for the extent to which high-grade clay products were used in its construction and decoration. It may be ventured that their example will be followed by the designers of other structures where a happy combination of beauty and utility is desired, and that clay will, as a result, take its proper place in commercial architecture, not only as a sturdy and reliable structural material, but as an unsurpassed decorative agent.

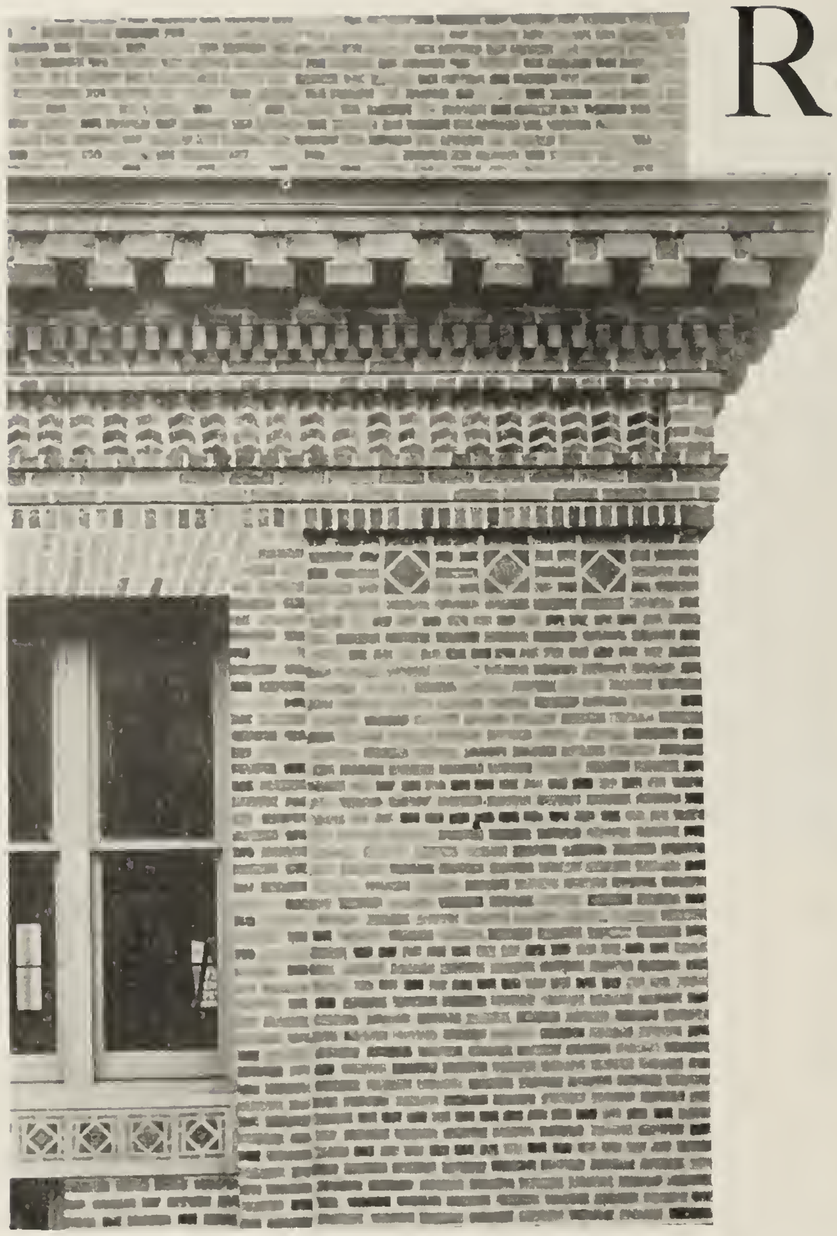


The Flower Department in Lord & Taylor's New Store in Cincinnati, Ohio. Here the Use of Burned Clay Is Made a Commercial Asset.

Rough Texture

Cleverly Designed Pattern Work Displacing Molded Brick Ornamentation in the New School of Brick Architecture

By George J. Jervis



Cornice of the Brooklyn (N. Y.), Carnegie Library. Body Brick Rough Textured Brownish-Gray, in four to six shades. The Tile under the Window and Cornice are Light Blue.

ONE of the most noticeable signs of the times in the brick world today is the added interest displayed by the manufacturers as to the handling of their product by client, architect, and builder.

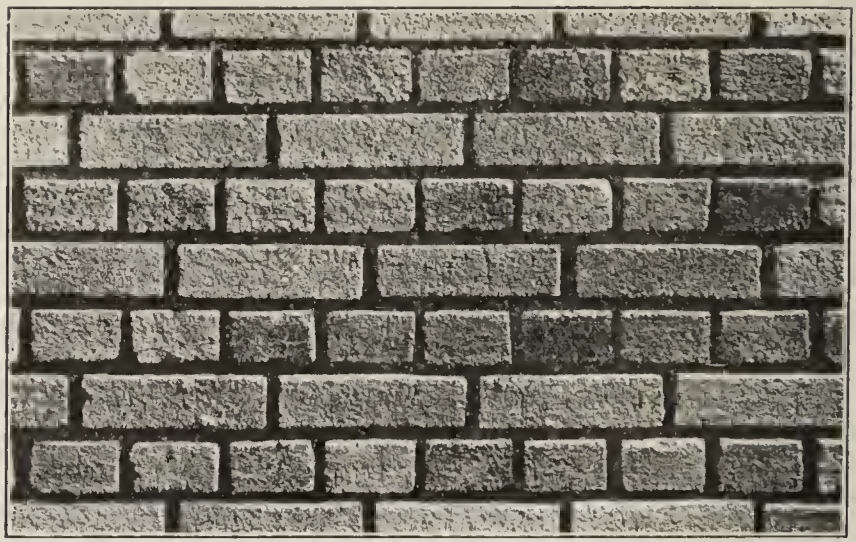
The days are gone when the manufacturer was simply content to ship the out-put of his plant without any great concern as to its ultimate appearance in the finished building.

The change from this condition of affairs, may not be due so much to the result of a change of conscience on the part of the manufacturer as to the growing appreciation on the part of the architect and client of the possibilities of brick decoration.

For many years, all special shaped or moulded brick were to a large extent a separate proposition, handled by firms who gave their special attention to moulded shapes and who stocked standardized patterns in monotoned shades of color.

One of the principal reasons for this condition was the fact that buildings were erected of smooth brick of one color, laid up with narrow and often almost indistinguishable joints, and the only way to relieve this severe and inartistic construction was by change of form, for color variation in the style of brick used was either so light as to escape notice or so extreme in contrast as to appear grotesque.

At the present time when variation of shade plays such an important part, and more especially as it effects brick of rough texture, architects seem to call for fewer moulded shapes of the old standardized patterns and to confine their decorative schemes largely to different forms of arrangement of the standard sized brick with an occasional use of a larger or smaller unit, and this seems to point to the fact that there is less necessity for standardizing such a variety of moulded shapes and sizes as has been the custom in the past.



A Good Example of "Dutch" Cross Bond, the Faces and Heads of the Brick being of three to four shades, laid at random.

We are realizing today that the beauty of brickwork consists in putting some life and color into our brick construction and that the general color shall be of shades which harmonize with the surroundings.

The mortar joint was never intended to be concealed, it gives character and beauty to the building, it also gives some freedom to the architect and builder for the fact that in these days of wider joints and artistic brick, the architect is using the unit of stretcher and header to obtain effects in brick decoration which a few years ago with the material at his command would have been impossible.

The dubious decorative effect of Flemish bond with red stretchers and black headers, which might reasonably

Some 14th Century Brickwork. Hull-Yorkshire.

Brickwork

The Bond and Mortar Joint Receiving Proper Prominence in Good Modern Brickwork

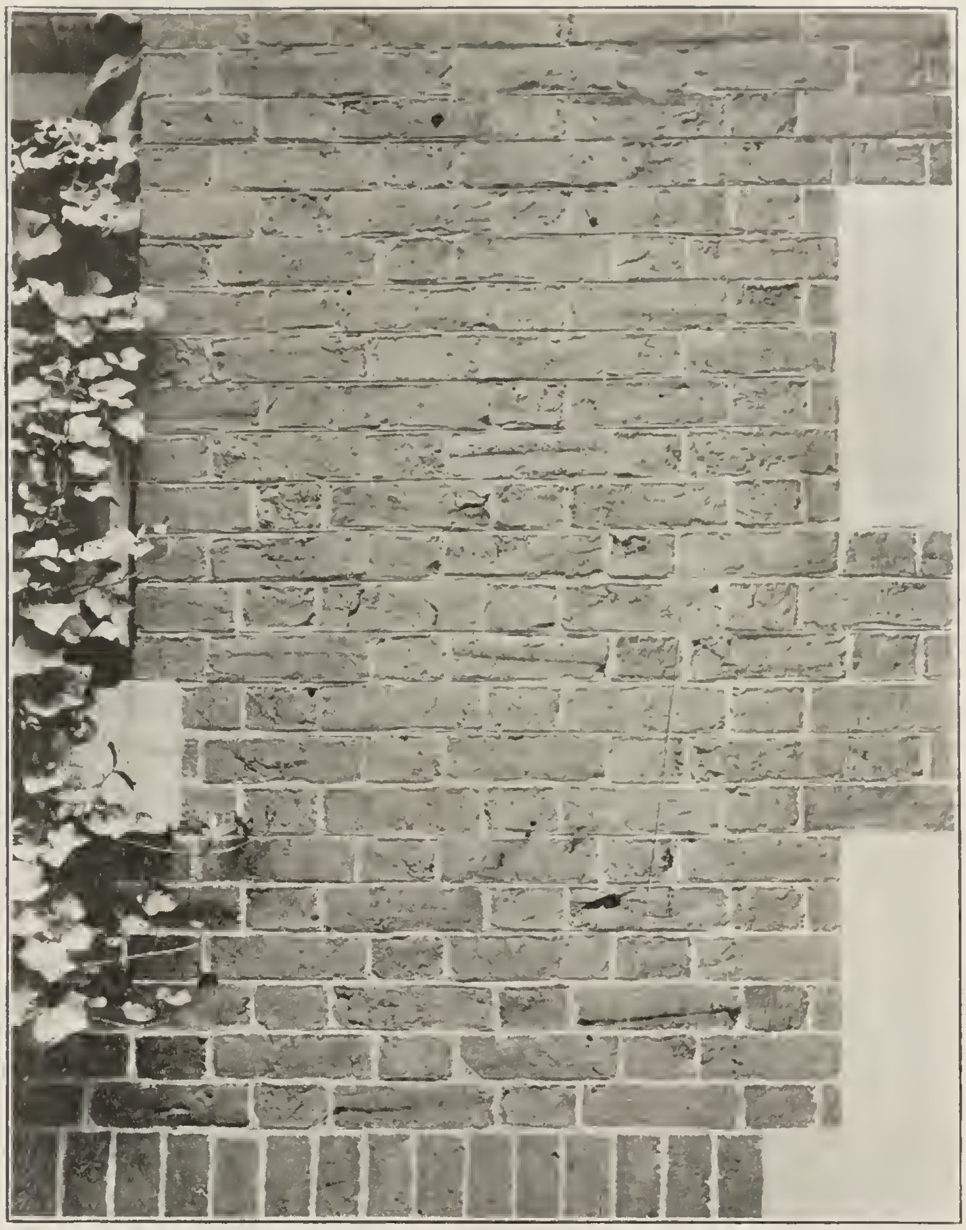
The illustrations that accompany this article are published through the courtesy of Fiske & Company, Inc.

be referred to as checkerboard treatment, is no longer excusable, for the treatment of wall surfaces has reached a higher plane with the advent of closer study to the advantages of shade variations and suitably colored mortar.

Note the beauty of the "Dutch" Bond, often incorrectly called the English Cross Bond, although this bond was used in Holland long before it appeared in England between the 15th and 16th centuries, and see how the soft criss-cross effect is obtained by the arrangement of mortar joints alone.

The architect today, when deliberating as to the shade, size or texture of those brick units with which his building is to be constructed, has such a variety of material to select from, that the uninteresting brick wall surface is or should be a relic of the past and brick decoration may be said to rival those celebrated examples of historical brickwork of the Old World.

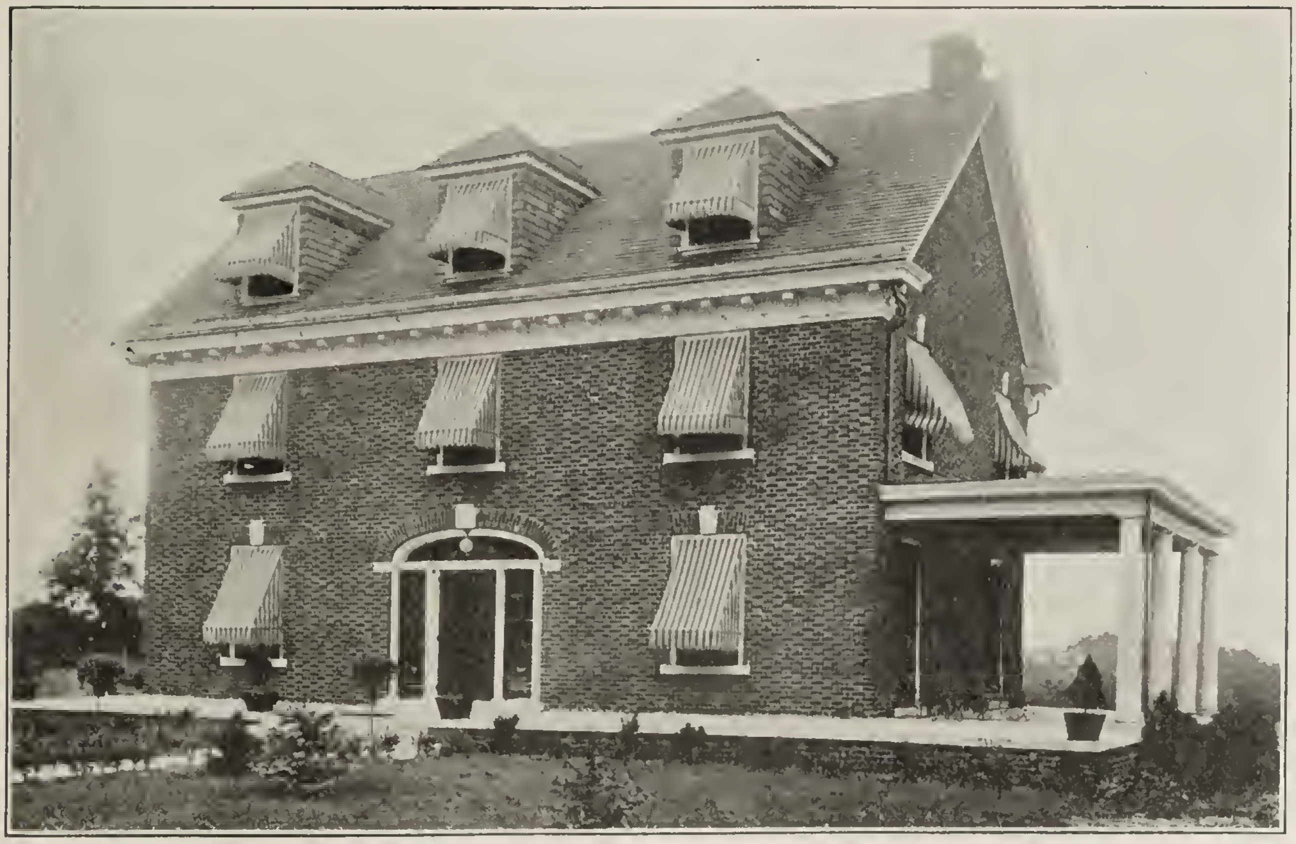
With reference to the above, it is interesting to note that the architect who comes back from Europe with such admiration for the old-time brick construction is often extremely particular about the size and color of a single brick unit. How illogical this is—the beauty of the old brickwork lies in the fact that its units and shades have the greatest variation. Observe the illustration of brickwork dating back some hundreds of years and note the varying sizes of its brick; or, better still, let those who have the chance to do so, see the old brickwork itself and find what variation of color it possesses.



American Brickwork that Savors Strongly of the Old World feeling. A part of the Harvard Club, in New York City. The Brick is a Water-struck soft mud brick, made in New England.

It is the finished brickwork that meets our eye—not the individual unit, nor the comparative breadth of the joint. These are as unimportant as a slipped thread in a piece of tapestry.

If, during the past half century of American architecture, as much attention had been paid to the general effect of the brick surfaces as has been paid to the size and shade of one brick sample, we should have arrived much earlier at the solution of the problem of artistic brick decoration in this country. Brickwork, to be pleasing, must be sufficiently individual to carry the textile effect to certain well defined distances. If the house be on a narrow street, where no more than thirty or forty feet can be put between the brick wall and the critic, that wall should be built with that distance in mind. If the house stands back a hundred or more feet from the roadway, a good rule is to make the brickwork sufficiently strong in texture and color to carry its effect to a point where the building can be seen in its entirety.



A Residence in Which the Flemish Bond has been Emphasized by a Mortar Joint of Generous Width. The Checker Board effect is not so strong in the Building as the illustration would indicate. The Brick used are Rough Textured Red, in twelve different shades.

Birdseye View of the Immense Raymond Plant at Dayton, Ohio.

The Raymond Plant at Dayton

Being a Little Journey to a Great Enterprise That is in the Third Generation of Usefulness

WHEN a man reaches thirty he is eligible to the presidency of the United States. When a business enterprise has passed its thirtieth milestone it has attained an age that gives it the confidence and respect of the industry which it serves.

In the pioneer days of Ohio a blacksmith came to Dayton and found his work in the repairing of farm wagons and stage coaches. His name was G. M. Raymond and he was the grandfather of the Raymond "boys" who run the great Raymond plant today.

The Raymond "factory" of 1880 when the late Charles W. Raymond succeeded his pioneer forebear, was a modest affair—needing but the "spreading chestnut tree" to give all of the atmosphere of the poem that we analyzed in early school days, but in this village blacksmith shop was born the first improvement in tempering or "pugging" clay, and the first successful hand repress for ornamental brick. This latter invention was in its day, one of the wonders of the clayworking world, performing, as it did, the work of a hundred men with but two.

It also marked the beginning of the clayworking machinery business which was followed by the application of power to the hand machine, making a product never before dreamed of by the brickmaker and paving the way for the modern magnificence of brick architecture. In six years the little shop had grown to the proportions of a real factory,—a two-story frame building at First and Taylor Streets in Dayton.

During these early years the progress of clayworking machinery was by leaps and bounds and to Charles W. Raymond is given much of the credit for the progress made in this industry in the early eighties—as indeed it was given him during all the thirty-two years of his activity in the craft, dating from the day he took over the G. M. Raymond blacksmith shop until Death called him two years ago.

The Raymond business kept on growing—it was a habit—until the two-story plant was found inadequate and in 1890 a frame addition was added, a full city block in length. And so on up to the present magnificent buildings constructed of vitrified brick on steel framework that cover eight acres of level land and are models of modernity, economy and strength coupled with real architectural excellence of outline and color.

In the Raymond factory, aside from the beauty of the buildings, economy of operation was the paramount feature in the general plan. Beginning with the reception of the raw material on a 1,000 ft. railroad siding, its distribution is by means of an industrial railway to the varions departments, eliminating a great amount of handling that would otherwise be necessary.

On entering the machine shop a vast floor space is seen filled by machine tools in regular order, heavy and up-to-date, permitting of great accuracy. In the center of the building is a craneway where a large traveling crane, capable of handling the heaviest product of the company, continually moves these loads with perfect ease, its travel terminating over the railroad cars which enter the south end of the building for the loading of out-of-town freight. On either side of this craneway is the second floor or galleries where the lighter work is done such as the manufacture of trucks, dumping cars and similar appurtenances. These galleries also contain the drafting room, pattern shops and pattern storage.

C. W. RAYMOND, JR.,
Vice-President.

J. C. BRANNOCK,
Secretary and Treasurer.

G. M. RAYMOND,
General Manager.

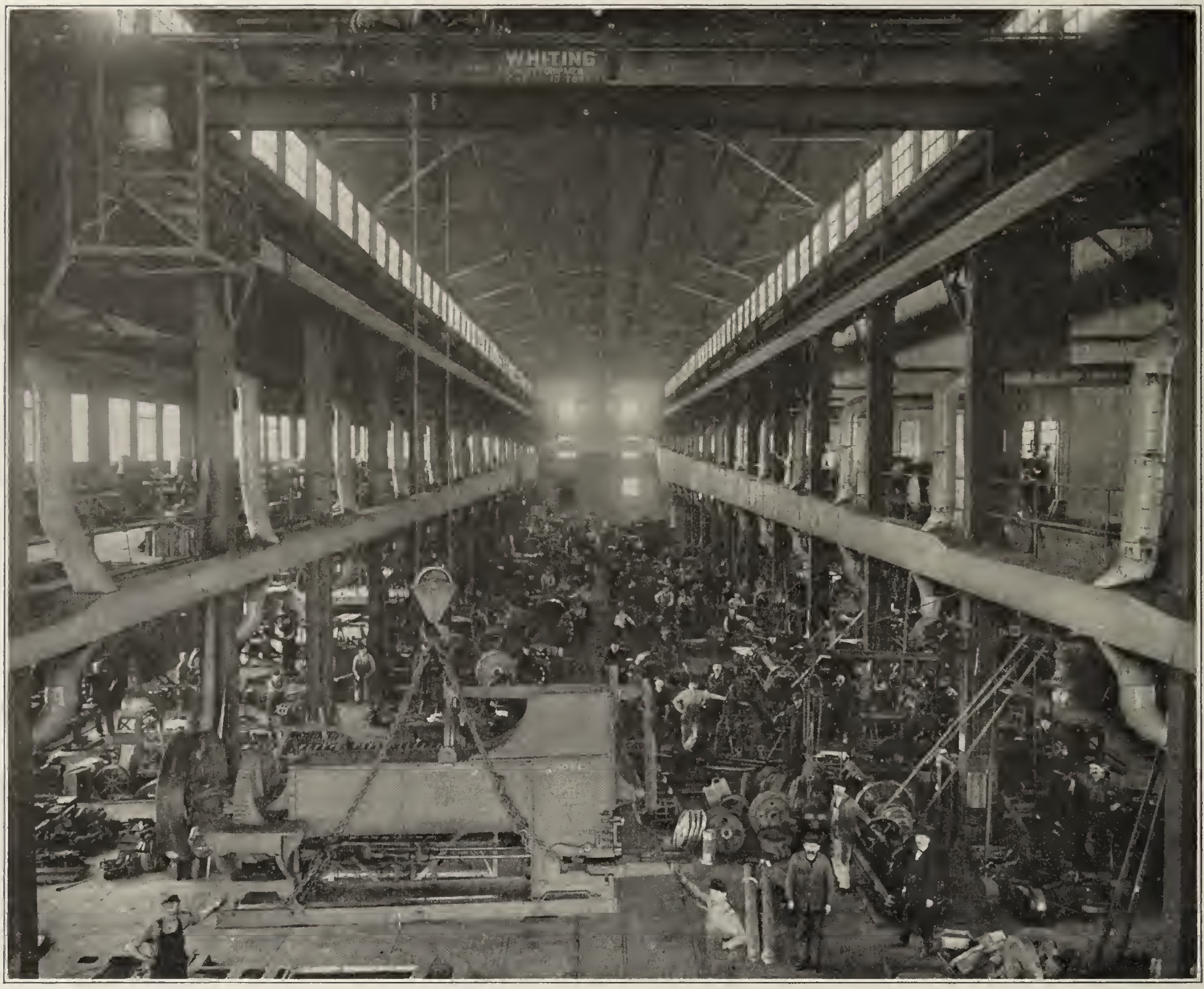
This machinery department contains quite a number of interesting features of economy, among which perhaps the one of most interest to the brick manufacturer is the system of taking care of deliveries of either machines or parts. The machine tools are arranged in groups, requiring 10 hp. for operation. Each group is run by 10 hp. alternating current unit. This gives great latitude and flexibility in the handling of all departments, for should an important motor working on a rush order become disabled, it would be but a few moments' time to replace it with a machine from the group which could stand for some delay, at least until repairs could be made. This flexibility in the machine shop has, time and again, saved delays in shipment which would have been embarrassing to brickmaking plants.

In the foundry department the same precautions are taken to be ready to turn out rush work and to do so without entailing additional expense. This building, while not so large, is of the same general construction and is equipped with a traveling crane, cupolas capable of running out 12 tons of molten metal hourly, blowers, etc., all of the equipment being strictly up to modern requirements. The power is derived from a central power station entering the transformer house at a voltage of 2,300, where it is stepped down to 110 volts for lighting and 220 volts for power, and at this point the first distribution takes place by sending out to the various buildings. This method assures constant power, not being troubled with ordinary breakdowns, and results in continuous service as the central station is so equipped with duplicate parts that emergencies are readily taken care of.

The present office is a structure less pretentious than the factory buildings, being a two-story frame which was found all ready built and practically suitable for immediate requirements. This structure will, however, be replaced in the near future by a brick building in harmony with the general plan.

In all, the buildings are a standing advertisement for the possibilities of burnt clay products and were planned and built with a view to exemplifying their uses. Except for the floor and foundation work, concrete does not enter into their construction and they are such that they

The Raymond Office and Office Force. This Building Will Soon Be Razed and a Brick Structure Erected In Its Place.



General View of Main Machine and Erecting Room.

enthuse the loyal brickmaker and awaken his pride in the possibilities of his product in factory construction.

A description of the machine room and erecting room would not be complete without some mention of the elaborate ventilating system which was installed when this building was erected. By this system it was arranged that the air supplied to the room would be passed over pipes chilled with cold water in Summer and heated with steam in Winter. The cooling system is theoretically and practically correct but, owing to the splendid architecture and natural ventilation of the building, has never been called into use.

A glance at the illustration shows J. C. Morgal, general superintendent of the Raymond plant, in the lower right-hand corner and around him and near him are seen some of the most modern appliances in the machinery making world. This department employs about 175 men, all of whom are under the personal direction of Mr. Morgal and all of whom, from what can be learned, are intensely loyal to the Raymond interests and the Raymond Institution.

Perhaps a "little journey" to the Raymond plant would lead through the office, where would be met C. V. Raymond, the president, and Charles W. Raymond, Jr., the vice-president of the company.

With them would be J. C. Brannock, secretary and treasurer, and George M. Raymond, general manager.

The late C. W. Raymond, writing in the "Clay Crafter" in January, 1911, said: "Back of every successful business organization we find 'the boys.' No single man can expect to handle any large business successfully without the loyal, enthusiastic support of the men who form the bone and muscle of the organization. Glance at the large railroad, industrial and banking organizations of the country and see how truly our 'captains of industry' understand this.

"The speed, accuracy and quality of our work and above all, the kind and continuous regard of our many customers, depends on the men who 'back up' this large organization of ours."

These are "the boys" that the visitor may meet on entering the Raymond offices and continue to see until he steps out of the last door in this great plant.

Perhaps it would be well to go from the office to the engineering department where a trained staff of engineers and draftsmen work out new and improved methods for better ware at lower operating cost. It is here that machines such as the Mobile Cutter and the C. W. R. Brick Machine come into existence.

The next step is to the pattern room where all of these engineering ideas are given physical form and are prepared for the proper foundry use.

Modern machinery and labor saving devices are prominent in the foundry where a traveling crane and electric magnet makes the shifting of heavy castings an easy task. The filling of molds for these castings and

Engineering Department.

all of the work incident to the carrying out of great ladles filled with seething fiery metal is performed in a way which saves labor and reduces danger to a minimum.

In this room are made cylinders and parts for aeroplane engines for the famous Wright Brothers, whose factories are also in Dayton. In the illustration are shown some of these parts; one of the pieces at the left being in the rough and the other one machined. The walls of these cylinders are machined with extreme accuracy down to one-eighth of one inch in thickness. The delicacy and lightness of these castings makes them a difficult problem for the average foundry and it is a matter of note that Wright Brothers tried without success to have them made at various parts in the country, the Raymond Company being the fourteenth concern to attempt this work. It speaks well for the Raymond people that they were able to handle it from the day it came to them and that they have done all of the Wright Brothers foundry work since that time. So much has been said about the peculiar construction of aeroplane and the necessity for extreme strength accompanying the metal parts used that it may be mentioned here that the same mix is used in the castings shown in this illustration as is used in all other Raymond light castings.

To be exact in the description of the cylinders shown it may be said that they are used in Wright's new six cylinder engine, developing 90 h.p. and weighing but 270 lbs. Three of these are now in use by United States Army officials in Mexico and the men high above Vera Cruz are staking their lives on the reliability of Raymond metal just as brickmakers stake their day's output and plant record on the same excellent material.

In one of the illustrations which accompany this article the north end of the car shop is shown in which thousands of dryer cars are built annually.

In the boiler shop, the south end of which is shown in the illustration, are made the metal parts for the Raymond patented producer gas continuous kilns and the Raymond patented metallic radiation dryers. The funnels shown in the illustration are for a large kiln which is being built for a large Canadian plant.

The Raymond company has found it profitable as well as practically necessary to install one of the most complete clay testing departments on this Continent.

Two strings of wire cut equipment are available; one a "777" machine and a No. 4 Mobile automatic cutting table for the testing of materials in large quantities, this string of machinery being installed in exact accordance with commercial working conditions. To utilize this outfit, from a ton to two tons of material is necessary.

A smaller outfit consisting of a National wire cut brick and hollow-ware machine as well as a hand cutter, is used for small amounts of clay. The most up-to-date equipment for the production of dry-press and soft-mud brick is also present. Owing to the great and varied line of clay products, it is necessary to carry a very large assortment of dies, auger mechanism, fronts, cutting tables, etc. Facilities are at hand for the crushing of clay for various processes. Open and closed as well as wet-pan pugging are all used at various times.

The product as made on the various mud machines is dried in a radiated heat chamber dryer, exact control being obtainable by means of valves, thermometers, etc. The burning system is entirely automatic in every sense of the word. It is both unique and efficient. To the Raymond's company's knowledge, it is entirely original, being the only testing department so equipped in the country.

Oil is used for fuel. Not the pan system, but the kilns are equipped with burners, which spray the oil under air pressure. An air compressor direct connected to a motor sup-

Pattern Shop.

The Crane Cage, from Which Is Controlled the Entire Transferring Apparatus of the Foundry.

plies the necessary pressure. The operation of this compressor is controlled by automatic means, by regulating devices, which causes the compressor to run when needed. Several valves keep the pressure on both oil and air at all times constant.

The kilns are of an approved down draft type, so constructed as to burn with the greatest uniformity. The burning is controlled by practically all known checks, draw trials, Seger cones, as well as both recording and registering pyrometers. So near automatic is the system of burning, that it is not even necessary to employ a burner for night shift.

Arrangements are made by the Raymond company in conjunction with physical testing to furnish chemical analyses of clay, rattler and other abrasive tests.

Several hundred clays from all parts of the world are tested by the Raymond company each year and full technical reports are submitted under the signature of a graduate Ceramic Engineer.

As the Raymond company conducts an apprenticeship course for Ceramic students, these are gradually advanced to be assistants in the testing department, all of which makes this department of the Raymond company as efficient as possible.

In line with other Raymond policies is the "post graduate course" that the Raymond plant gives to ceramic students. Coming fresh from the university where they have been jammed full of theories, they are put in charge of hard-fisted but kind-hearted mechanics, who take them on, first as day laborers in the foundry—then the machine shop and die department, until, finally, they "graduate" into the testing department, where they find the practical knowledge gained under Raymond guidance, has given them a wider knowledge of ceramics than they had when they took their diplomas seriously, thinking they were, indeed, past masters of the arts ceramic.

A Back-Breaking Operation in Most Foundries but Here Done with Perfect Ease.

This course is not only free—the Raymonds devote considerable time, thought and money to this part of their business—but the boys are "paid while learning." And they are paid exactly the same rate as men, doing

General View of Foundry.

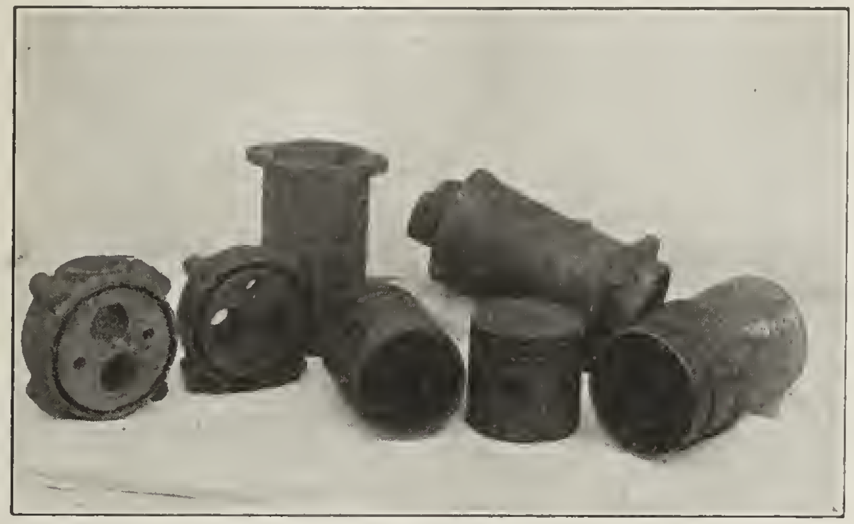
North End of Car Shop.

South End of Boiler Shop.

the same work, would receive. The "course" has no special time for beginning, except as the schools close and a new crop of ceramists come into being. It has no end, save as the "post graduate students" find employment in other places, where the school theory, plus the Raymond practice, makes them valuable men and commanding large salaries.

The only restriction put upon them is that they must do each task with Raymond standards, and believe that each phase of the work, however humble, has its own dignity, as a part of the final Big Achievement—a life's success.

Instructors in the various ceramic departments of State Universities are enthusiastic over this Raymond plan, knowing, as they do, gives him a better knowledge of the science that he has chosen for his life work.



Castings Made by the Raymond Company. These are Aeroplane Parts Made for Wright Brothers.

ROY H. McELROY, Cr. E.
In Charge of Testing Dept.

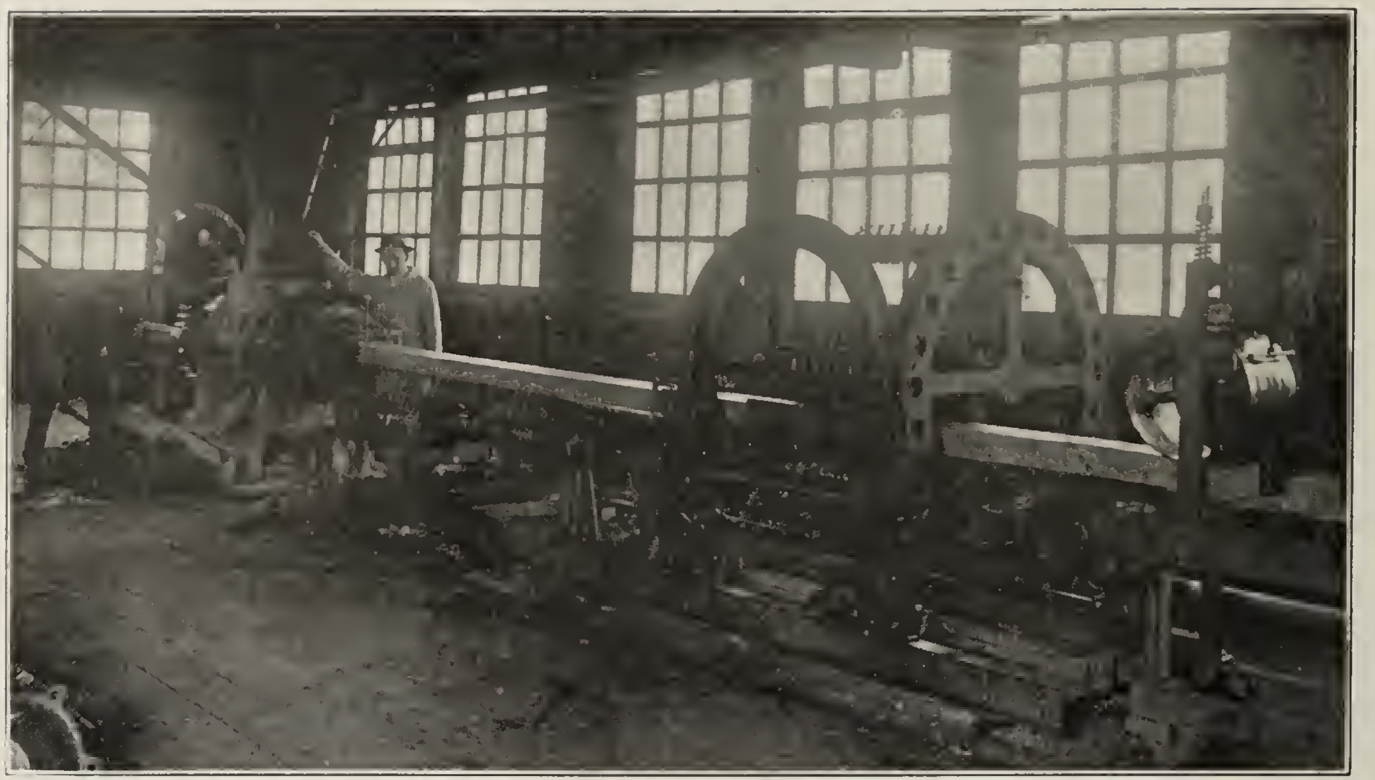
One department of the Raymond works that is of great and growing value to the clayworker, is the editorial office of the "Clay Crafter," a house organ of more than passing excellence. This little paper was started in the early part of 1910 and has contained many interesting and instructive papers on various subjects connected with the burned clay industry, some of the best known ceramists in the country being among its contributors. It is full of helpful, hopeful messages for the man who works in clay, being more like a little magazine than the accepted idea of a house organ.

The Raymond "advertising service" is unique. For many years, various brick men have tried their hands at writing good newspaper ads for use in papers of local circulation, such as country weeklies. It is known that this class of paper is a good advertising field for the maker of hollow block and drain tile, as well as the brick man. But, although cheap, in comparison to the cost of advertising in the city dailies, the item of expense in these smaller papers was still large enough to make necessary a certain care that the publicity "had the punch." The Raymonds came out a while ago, with a small book, containing more than one hundred ads, each one a gem of ad writing, each one accompanied by an outline cut, each one a business getter. The books and the advertisements were given free to the trade. Electros of the illustrations were offered at actual cost. This is the service that approches altruism, since these ads will be used by all clayworkers that see the value of a good ad in their home paper, and the Raymonds can only hope to reap their harvest in the good opinion of the clayworking world; but

Another View of the Testing Department With Hand Cut-Off.

these are the things the Raymonds are doing—serving the craft they chose to give service to—more than thirty years ago.

C. W. Raymond Company has staked its reputation on the success of the producer-gas fired continuous kiln, and the success that has attended Raymond installations would indicate that the Raymonds knew that they were not taking any chances when they put this highly satisfactory type on the market. There is evidence, and plenty of it, that plants which have installed this system are now burning better ware than they burned previously, and with but half the fuel cost. A few customers like this, sounding the praises of any machine or any method, will make friends and customers for it—hence the busy hum in the Raymond boiler shop, where the funnels and pipes that convey the gas, are made.

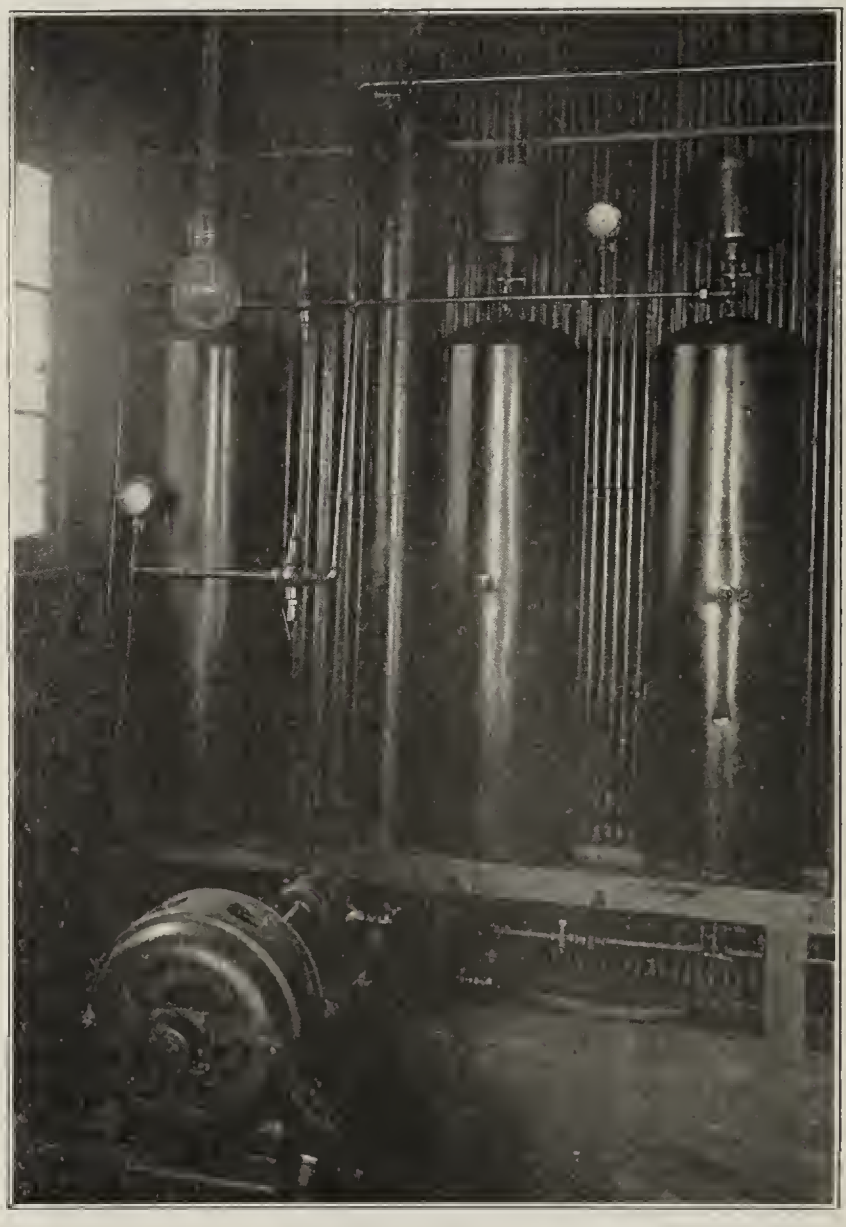


The Raymond Testing Department Showing String of Wire-Cut Testing Apparatus in Use.

Since the Raymonds placed their "Mobile No. 4" cutter on the market, a little over a year ago, they have sold quite a number and have yet to hear the first complaint of crooked brick. The truth is that you couldn't cut crooked brick on a Raymond Mobile No. 4 Automatic Cutter if you tried—and the further beauty of the machine is its ability to cut none but straight, perfect brick whether running at speeds of 20,000 or 100,000 daily.

The Mobile No. 4 has been so carefully designed that it combines all modern features of cutter construction that are desirable and obtainable, the materials are the very best.

Every machine that leaves the Raymond plant is assembled and tested before it is put on the cars that take it to its des-



A Corner in the Kiln Room Where Tests Are Made Under Practical Working Conditions. Here Is Shown a Recording Pyrometer Which Is Registering the Heat in the Kiln. Part of one of the Kilns Is Shown at the Left.

tination. As a consequence, bolts and rivets are in place, machined parts fit accurately, and, when the machine is finally set up at the place for which it was made, there is no discouraging wait and no time lost "tinkering"—the preliminary "tuning up" has been done at the Dayton plant.

So on, all through the establishment, the idea of expert, painstaking, expensive service prevails. The new standard of commercialism is in the air—the spirit of the square deal. It comes to the front in the welfare work for the employees—work that goes into their homes and helps in the ordering of their private lives. It has life and breath in the constant thought—"We must be ready for any emergency—anything is better than to tie up a plant." It has all of the dimensions, as it leaves the manufacturing clayworking machinery, to build up a demand for material made by those who buy machinery.

And to dwell, for a moment on that welfare work—the illustration of a meeting held outside the Raymond shop, would, to the uninitiated, give the impression of a religious gathering. True, the spirit of reverence is there—and the speaker comes from the Y. M. C. A. Listen, however, and hear him—today he tells of the "By Product of a Home Garden"—how one reaps health in the planting and tilling, even though the crop of vegetables be a failure. "By Products" appeal to men who are working in molten metal and amid the whirr and whirl of machinery. So does the idea of health and strength conserved amid the fresh greenness of a garden—possibly one's own.

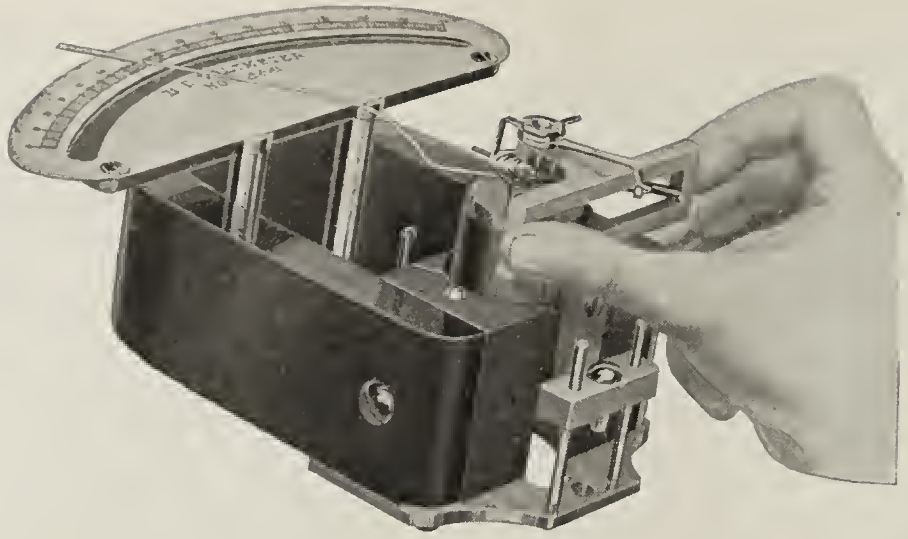
And the welfare spirit pervades the shops. It enters into the character of the work. A flaw in a casting makes that casting useless in the eye of the man who handles it, even though, in some shops, the flaw would be filled with black putty and iron filings and sent upon its way. The Raymond standard of honesty finds a ready response to the men whom Raymond welfare work has helped to a better kind of living.

Repair Loft Where Parts Are Carried in Stock Ready for Immediate Shipment in Case of Trouble. This Has Made the Raymond Company Popular Wherever Brick Machinery Is Used.

Brickmakers who have Raymond machinery know that in the past when times have come to send for parts to repair or replace those which have broken or worn down "Raymond Service" shortens the time of waiting wonderfully.

The Raymonds and the Raymond plant behind, the visitor leaves Dayton with an impression of the vastness of enterprises combined with an extreme minuteness of detail, business acumen and sympathy. It would appear as though the Raymond company was putting its immensity at the disposal of the smallest customer that could be imagined and if the Raymonds have a written motto, it must be—"He Profits Most Who Serves Best."

A Noonday Welfare Meeting Conducted by the Dayton Y. M. C. A. for Raymond Employees. This Is a Weekly Affair and Rotates Through the Various Departments. Employees of the Machine Room Are Shown in the Illustration and They Seem to be Interested in the Subject of the Day's Discussion, Which Was "The By-Product of the Home Garden."



A New High Resistance Electric Pyrometer

For measuring the higher temperatures no form of pyrometer is so satisfactory nor so accurate as the Thermo Electric Pyrometer which, as is generally known, consists of a milli-voltmeter graduated in degrees of temperature and a thermo-couple.

The desirability of having the resistance of the milli-voltmeters comparatively high has been a recognized fact, but it was not until recently that the art of instrument making was able to overcome the various difficulties of design and construction and produce such a milli-voltmeter.

For this reason low resistance thermo electric pyrometers have been very generally used, the resistance of the milli-voltmeters measuring from 2 to 5 ohms. With this type of instrument it is absolutely essential for the instrument to be calibrated with the leads or connecting wires which are to be used, and any change in the length of these leads or any change in the length of the thermo-couple furnished with the instrument will alter the true indication of the pyrometer and serious errors will result. A change in the length of leads of 1 to 50 feet is sufficient to make the average low resistance pyrometer read 25° or more low and a change in the length of thermo-couple from 3 feet to 4 feet will make the same instrument read 20° or more in error. For fairly accurate results, therefore, it is necessary to use the thermo-couple and leads which are furnished with the instrument, or exact duplicates thereof.

It is true that for some time galvanometers or milli-voltmeters, portable in form only and not of the switchboard or wall pattern, of high resistance have been produced abroad. These instruments, however, are usually of the suspension type; that is, the moving element is suspended from the end of a fine wire or metal strip. Aside from supporting the movement element of the suspension it has another function and that is to restore the moving coil or element to its zero position. It, therefore, has to be comparatively long and also small in cross-section, otherwise the torsional resistance or the twisting moment would be too great and the high resistance characteristic would not be achieved. The result is that this type of instrument is very delicate, the suspension being easily broken, which of course puts the instrument out of commission. It is also necessary before using the instrument to carefully level it, otherwise the coil will not swing freely in the magnetic field between the core and pole pieces. This type has, therefore, been unsuitable for general commercial conditions.

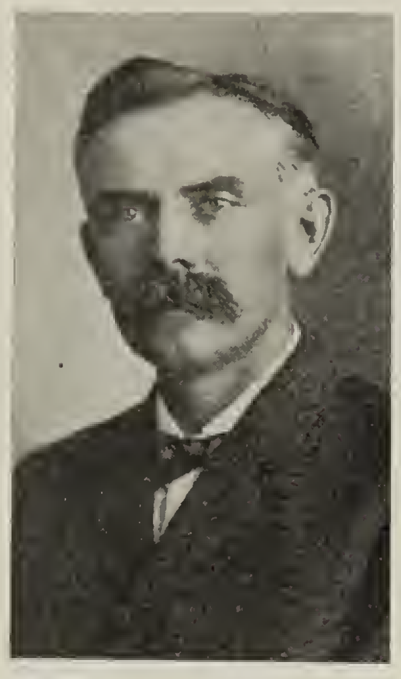
The advantages, however, to be gained from a properly designed and constructed milli-voltmeter of high resistance are very marked and some of them are as follows: Any change in the length of leads connecting the thermo-couple with the milli-voltmeter from 1 to 1,000 feet will not change the indications of the instrument as much as 5°; nor will any change in the temperature of these leads introduce any error in the indications of the instrument; neither will the length of thermo-couple, the size of the elements forming the thermo-couple nor the length of the thermo-couple inserted in the heat change the indications of the instrument. All of these advantages are due entirely to the extremely high ratio of the resistance of the milli-voltmeter in relation to the resistance of the thermo-couple and leads.

The Brown Instrument Company, the leading pyrometer manufacturers in this country today, who devote their entire time and attention to the various problems connected with temperature measurements, have for the past two years been conducting exhaustive tests and experiments in order to design accurate, high resistance, thermo-electric pyrometers. The result has been that the Brown Instrument Company is now able to supply such an instrument of the pivoted type, that is a type in which the moving element or coil is not suspended from the end of wire or metal strip, but is absolutely supported by means of small hardened steel pivots in sapphire jewel bearings. The moving coil and pole pieces of the magnet have been so changed in design as to produce a magnetic flux of great intensity in the air gap in which the coil swings. This high resistance instrument, having a resistance of 100 ohms, can be furnished in either the indicating type or the recording type.

The Brown Instrument Company, of Philadelphia, has been able to design this system in such a manner that its cost is practically no greater than the cost of manufacturing the low resistance instrument, which permits them to put an instrument of this character on the market at a reasonable price. The instrument can be used for either base metal or platinum thermo-couples, as desired, and it is recommended for either type of couple. The same type of system is also used in connection with the recording instrument, and it is possible now to procure Brown High Resistance Indicating or Recording Pyrometers for either platinum or base metal thermo-couples.

Are You Using Our "Questions and Answers"? Hundreds of Knotty Problems Have Been Solved by Experts and Brickmakers Saved Hundreds of Dollars that Would Otherwise Have Been Spent in Useless Experiments.

Northwestern Clay Association for Publicity



M. C. MADSEN.

The new publicity committee of the Northwestern Clay Association is starting aggressive work for the betterment of clay products. One of the plans under consideration includes attractive displays of brick and tile, laid in mortar, to be put in various conspicuous places, from time to time throughout the year. To that end, the committee is negotiating with the bricklayers' association of Minneapolis. A representative of the local bricklayers' union was given a place on this committee by M. C. Madsen, president of the Northwestern Clay Association, and for this reason, the committee feels certain of its ability to make a favorable report on the plan.

Chairman L. G. Rose, of the committee, said: "I see no reason why attractive displays of brick, with well chosen mortar joints, will not go a long way toward educating the public to the use of brick for building purposes. If these displays are accompanied with the proper descriptive literature, that will set forth the facts, as we know them, relative to the slight increase in initial cost of a brick building over one of frame, and then call attention to the fact that this increase is offset by reduced upkeep, lower insurance rates and higher appraisal value, it will do a great deal of good. In addition to this, the safety from fire, the better appearance and better selling value should be strongly dwelt upon."

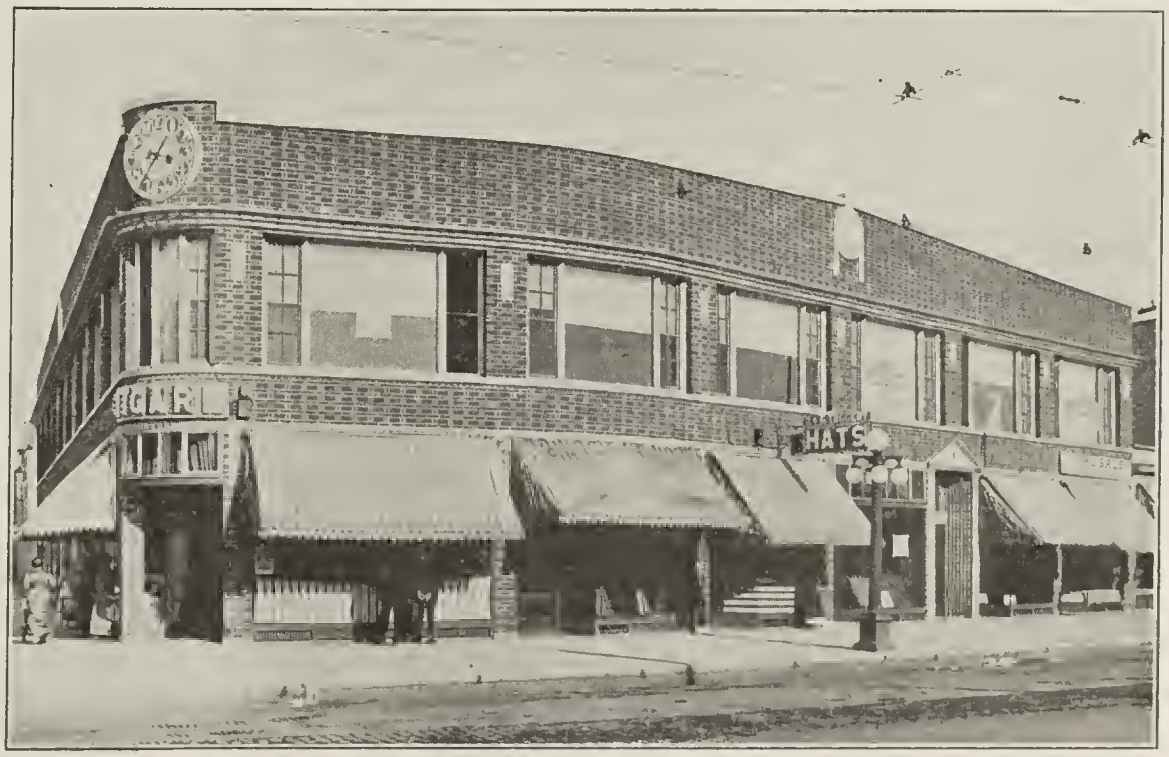
The committee also has under consideration a display at the Minnesota State Fair that will be held next Fall. This display is to show the clay resources of Minnesota and many of the brick and tile men in the state have signified their willingness to furnish displays of their products. It is hoped that this will have a far reaching effect, also, for the further use of burned clay.

Dodge Company Opens Two New Offices

The Dodge Manufacturing Company has opened southwestern sales and engineering offices at Dallas, Tex., and a district sales and engineering office at Grand Rapids, Mich. J. H. Drapier, of the general sales department, Mishawaka, Ind., has been made manager of the Dallas addition and Oscar W. Gregg, late of the Gilbert Pulley Company, representative at Grand Rapids. A short time ago the company opened a district office at Indianapolis in charge of E. M. Carver. Branches and warehouses with complete staffs of engineers and large stocks are maintained at Chicago, New York, Boston, Pittsburgh, Philadelphia, Cincinnati, St. Louis, Minneapolis and Portland.

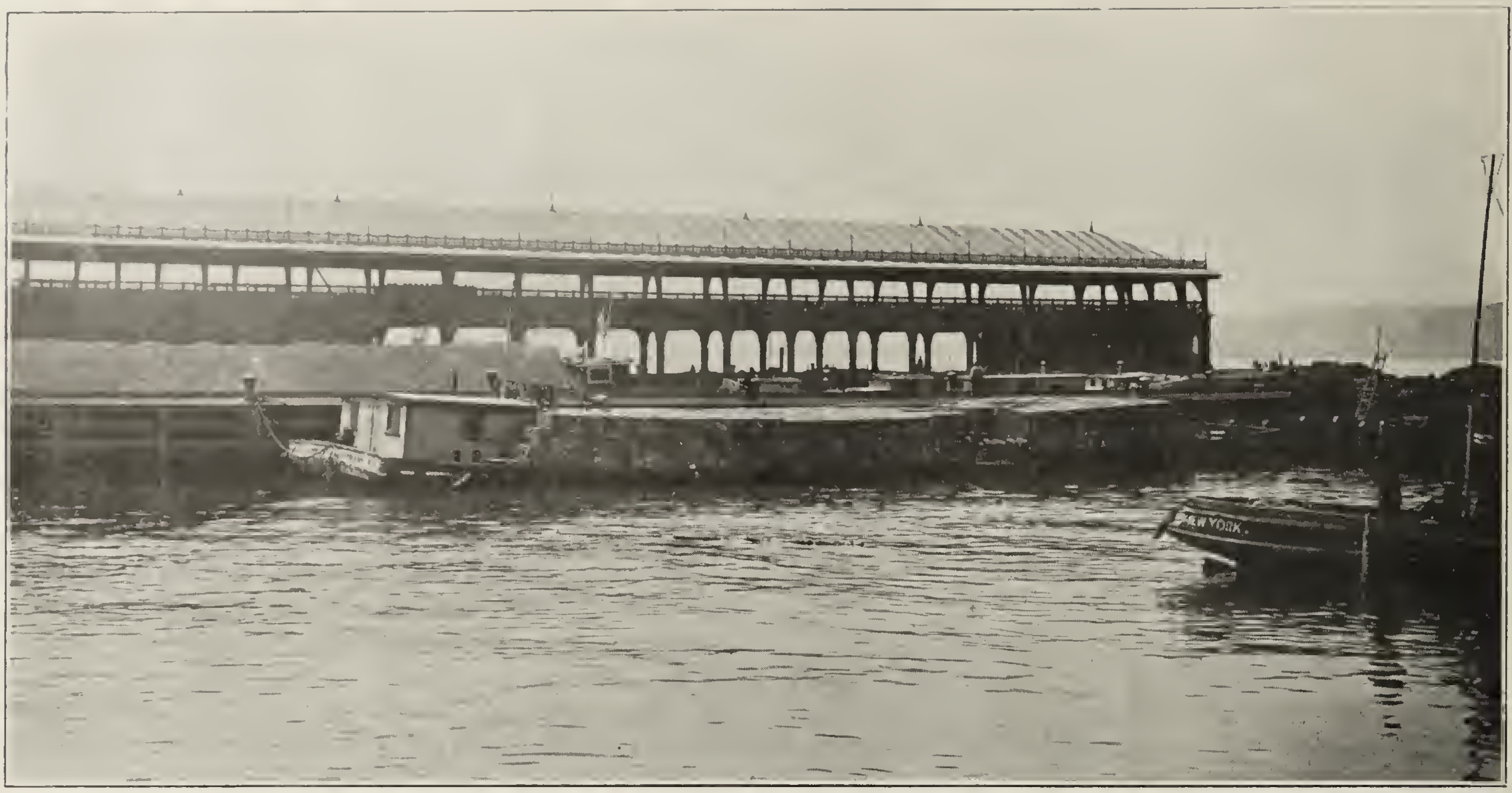
Almost a Chinese Bond

A curious, but exceedingly artistic piece of brickwork is shown in the accompanying illustration. The building is at the corner of Leland Avenue and Broadway on the "North Side" in Chicago. The architects, Ottenheim, Stern and Reichert, had a problem to solve in the irregular shape of the lot, and the erratic ideas of the owner. Adopting a modification of the usual way of laying brick in China, which is alternately on the flat and on edge, they worked out an excellent bond. The brick used is "Oriental," and measures 8½ x 3¾ x 2 inches. A little careful figuring will show that, with this unit and a half inch joint, a pleasing geometric effect is given, to which, in this case, was added the color—deep red on the flat side or bed of the brick and blue-brown to black on the faces and heads.



READ THE PINK SECTION.

A Reciprocal Bureau wherein you will find many things of interest, and an opportunity to practice the doctrine of co-operation.



The "Lottie G." at the New York City Wholesale Dock. The Upper Story of this Dock Is Known as the West 52nd Street Recreation Pier.

Pulling Down the Lottie G

Being the Story of "Cap'n" Bill Fowler and His Gallant Craft, with Some Remarks on the Absorptive Power of Brick

By Allen E. Beals

THE "Lottie C." was as staunch a brick-carrying craft as ever sailed the Hudson river. Coming out of Kingston harbor, with a fine cargo of North river brick, she had on board, all told, a captain, who was the poobah of the craft—commander, cook, mate, bo'sun tight, steward and tillerman, and about four hundred passangers—mostly brick. There were a few stowaways in the hold, but of them no mention need be made at this time.

Now a barge load of brick is as common a sight on the Rhine of America as are windmills in Holland, so as one of the many ships that pass in the night between Kingston and the Liberty statue, neither the "Lottie G." nor her robust crew attracted any attention until she arrived at her destination, which was the West 52nd street wholesale brick market in New York city. Then things began to happen.

Those readers of "Brick & Clay Record" who scan the Trade Review will remember reading numerous statements which indicated a condition in the New York market that was far from delightful for the man up the river making common brick. The consequence of this condition is shown in the high piled hacks and crowded sheds from the Palisades to Albany. Naturally, with the season coming to a close, the manufacturers want to increase the yard capacity by every brick possible, and a "barge-load" is a barge loaded to its uttermost limit.

Written deep into the pages of building brick vernacular in the Hudson river annals is the expression "Pulling Her Down," and for the enlightenment of those brick manufacturers in the West who never have been able to figure out just why every brick producer in the Hudson district is not a millionaire, with rich, inexhaustible clay banks at his back and an unfailing market for the finished product only a few miles down the river, there must be told the story of the "pulling down" of the heroine craft of this narrative.

In the convoy of brick barges that came down the river that night, the "Lottie G." was, apparently, no different from the rest, except that her freeboard showed only four inches above the mean level of the river. Ordinarily six inches should have been allowed. Under normal conditions nothing would have happened with such a crowding of capacity, but in this case Cap'n Bill Fowler's luck went on a vacation and the elements got in their fine work.

Just off Newburgh, on the way down, a stiff little breeze sprang up and every once in a while a wave would break over the four-inch freeboard and try to sweep the craft, but it so happened that through the long still watches of the night no one, except possibly the stowaways, noticed that although great waves would break in a foamy spray over the front of the boat, no water swept off the stern.

Down where the captain, crew and galley force was sleeping in his bunk, no sign of dashing wave or swish of sweeping billow disturbed the slumbers of brave commander Bill. And so the long night wore on, to quote the short story writers.

When commander Bill awoke and piped all hands on deck by the simple expedient of rolling out of his bunk, the river was calm and reflected the placidity of Bill's own mind as he made the "Lottie G." fast to the bulkhead and went ashore to see who was playing pinochle. In the dancing reflection of the early sun Bill saw no suggestion that, within an hour or two, he would not be so much a Man without a Country as a Cap'n without a Boat.

But this is what was happening.

As every little night-capped wave leaped over the bow of the "Lottie G.," during that blow off Newburgh, the tier on tier of brick drank thirstily, until the load that left Kingston weighing eight hundred tons, tied up to the dock in New York with a good twelve hundred tons displacement. That left a freeboard of only one inch.

Down in the hold of the barge there was an oversupply of bilge, which rocked back and forth with every little swell sent into the sheltered recess of the dock where the "Lottie G." lay. Soon the Hudson ripples washed the deck and, like a lamp wick feeding a flame with fuel from below, the brick drank up the water, until an extra heavy swell from a passing river boat displaced the level of the water in the hold and, recovering its equapoise, it hurled the tottering barge upon its side, delivering it of half its load and then, as quick, rebounded and relieved the Greater New York Brick Company of further concern regarding its sale in the Isle of Manhat.

Seldom is there written in the Hammond harbor log the story of a barge "pulled down," but when it does appear it tells anew the story of the absorbtive power of brick.

A New Book of Plans for Brick Houses

It is only once in a long while that a really comprehensive book is published which gives brickmakers the foundation for good, aggressive talks along sensible lines, about the superiority of brick for general building purposes. There has been a great need for something that would show houses of good outline, houses that are of ordinary types, suitable for localities that have not, as yet, arrived at the bungalow stage.

It is with great satisfaction, therefore, that the announcement of "Radford's Brick Houses and How to Build Them" is given. The book fills the want outlined in the foregoing paragraph, and gives a clear and complete, yet simple exposition of brick construction and brick design. It tells what every builder wants to know about the manufacture and classification of brick; approved brick construction and the measurement of brick work; estimating and cost of brick; framing for brick houses and use of brick veneer; together with all the important miscellaneous uses of brick, including boiler settings, brick cisterns and flush tanks, brick sewers, brick paving, ornamental brick and tile work, chimney and flue construction, brick fireplaces, etc., etc.

Looking this new book through carefully it appears a worthy representative of an old, important and growing business. It will be welcomed by brick manufacturers and dealers as a real help in their plans to extend the markets for clay products. Much good work has already been done in popularizing brick, so that now brick houses are more in demand than ever before. The beauty of modern style brick work, its permanence, its fire resisting qualities, and its moderate cost have been to a certain extent driven home to the minds of prospective home builders in many parts of the country by means of aggressive publicity work. Without doubt, not enough of this has yet been done, in fact, in reality only a beginning has been made; but it has been a good beginning, leading to high hopes for the future that this work may now be taken up on a larger scale.

This new book, "Radford's Brick Houses and How to Build Them" seems admirably suited for distribution among prospective home builders, to interest and instruct them in brick work and lead them to build brick houses.

The reader will find this book exceedingly well illustrated and thoroughly interesting. It is full of new and novel ideas as well as the time tried methods of approved brick construction. Detailed drawings are presented, all fully worked out. Prices and estimating data are given. The building plans illustrated in this book are examples of the very best architectural work. The collection includes modern brick residences of all styles, bungalows, two story dwellings, city apartment buildings, etc., all in the most approved and satisfactory architectural styles. Each page shows a water color perspective, illustrating just how the building will look when completed, also floor plan diagrams showing the sizes and arrangement of all rooms.

A very high standard of architectural work is maintained. Each dwelling is a gem architecturally, yet at the same time is thoroughly practical. In outward appearance these brick houses are attractive, substantial, home-like, many of them decidedly individual, all of them designs that most people like. The arrangement of rooms and the use of interior space are convenient, conforming of the best ideas in house planning.

In addition to the residence designs there are also included in this book ten brick churches, three brick school houses, a public library, and a town hall.

This book may be obtained through "Brick and Clay Record's" book department, the price being $1.00 postpaid.

Laying Brick in the Canal Zone.

In the laying of the brick floor of the completed portion of the quay wall at the Balboa terminals, a squad of five West Indian masons, serving in relays, three men working at the same time, with two resting in reserve, laid in one day of ten working hours, a total of 96,000 brick. The entire gang, including the white foreman, Mr. Park T. Andrew, and the men engaged in handling the brick from the cars, mixing and carrying mortar, etc., consisted of 67 men.

The masons laid the paving between the inner rail of the track along the face of the wharf and the inner coping, a width of 50 feet, over a distance of over 400 feet, covering an area of approximately 20,000 square feet. Counting five men in the squad, each laid at the rate of 1,920 brick per hour, or 32 per minute; three men being actually at work, the brick were laid at the rate of 3,200 per man per hour, or 53.33 by each man each minute. The masons were paid 13 cents per hour.—Canal Record.

The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record," Chicago.

Wants Sensible Brick House Plans.

The following letter from the Excelsior Brick Company, of Menomonie, Wis., gives publicity to what is really a "long felt want" in many parts of the country. In answering it, we have suggested Radford's "Brick Houses and How to Build Them," which can be bought for $1.00 and is well worth the price. Read it carefully:

> This was formerly a lumbering town and notwithstanding the fact that we have three brick plants here and brickmaking is the principal industry, our people are still building frame houses. This is partly our own fault, for we have neglected to urge the use of our product. We now wish to do so and wish to show the people that they can build a moderate price house of brick.
>
> Will you please let us know what literature you have or point us to the proper source? We want pictures and estimated cost of homes costing from three to five thousand dollars. We do not want a lot of fancy unusual bungalows or houses such as would make a home conspicuous, for our people will not readily take up with that, but would want fairly plain, attractive, small houses and we would be very glad to pay liberally for the proper literature and information.
>
> We have been a subscriber of yours for years, and will thank you for any information you may give us.

"Brick and Clay Record" hopes to launch a new publication in the near future, which will be devoted to houses of the kind described in the foregoing letter. It will have a national circulation among architects and home builders and will contain features that will give it what is technically known as a "newsstand circulation" also. This, it is thought, will give brickmakers an opportunity of presenting the kind of literature they need, to carry the story of brick to men who are building modest homes and to whom the ornate "competition" type of house has no appeal.

Praises Superintendent's Department.

R. C. Gangewere, of Chattanooga, Tenn., in acknowledging the check he had won for the suggestion published in the April 7 issue, writes:

> This is a department the writer has advocated for some time prior to your adoption of the same and I think that every superintendent should take advantage of your liberality, as it will give each and every one a personal interest in your great trade journal, which should be read by everyone interested in any form of the clay industry. Your Question and Answer pages are alone worth the subscription. I wish you continued success with your valuable journal.

The two departments mentioned by Mr. Gangewere are becoming more valuable each day, and the plant management that does not arrange matters so that the superintendent has an opportunity of reading them is missing a chance to add to the producing power of that superintendent.

Pottery Calculations.

The following letter comes to us from Tom Beresford, of 2236 Seminary Avenue, Chicago:

> In the last issue of "Brick and Clay Record" particulars are given of a meeting in Pittsburgh of the sanitary manufacturers, to discuss the advisability of adopting a system of arriving at costs.
>
> The knowledge of the cost of each article made is particularly important in the pottery business, and it is possible to estimate the various productions in their numerous stages, reliably and without entailing any extra clerical force.
>
> In the past, when competition was not so keen, and almost any kind of price could be obtained for the article, the manufacturers did not need so close a knowledge of cost, but at the present time, when goods are being sold at low prices, they are not only apt to, but do frequently go below cost.
>
> A plumber informed the writer that he was buying a wash down closet for $2.50—in small quantities, as he required them. A low price, such as this, compels the maker to look around and calculate: if the article is pressed, 90c for labor does not leave much for materials, models, molds, biscuit fire, glost fire and expenses.
>
> Fifteen years ago, a method of calculating the articles was arrived at in the factories where I had charge, in England. This system was most effectually worked out and tested under the various heads, at the unit that was arrived at by averaging five years' production, and found to be reliable.
>
> We made at this factory hundreds of articles and shapes, both in General and Fancy Ware; the calculations were divided under the following heads:
>
> 1. Materials (Cost). 2. Labor (The actual price paid for making the article). 3. Models and Molds. 4. Biscuit Fire. 5. Total (plus actual loss of production to this point). 6. Gloss Fire (plus loss at this point). 7. Expenses—Then Total, which is total white cost.
>
> It can be seen that, with a system like this, the value can be ascertained at any stage of the production.

Part of Lincoln Highway Will be Brick.

John C. Boss, of Elkhart, Ind., writes us, sending a clipping from one of the Elkhart papers, and gives us some good news regarding at least a part of the Lincoln Highway. His letter, in part, follows:

> The writer is making a desperately hard fight to get a three-mile rural district brick roadway, leading westwardly from the city of Elkhart and we are meeting with excellent success. We expect to put the pavement in during the present season and we have the honor of having the first stretch of rural district brick pavement to be laid on the entire Lincoln Highway between New York and San Francisco.

The newspaper account is given in full:

> It was an important meeting held in the office of J. W. Fieldhouse when the committee appointed on the Lincoln Highway met, and from the action taken permanent improvement of the proposed road in Baugo township seems assured.
>
> The committee composed of J. W. Fieldhouse, chairman; A. H. Beardsley, Councilman A. H. Burrell, Mayor Smith and E. L. Arnold. Several visitors interested in the big project met with the committee, among them being H. Osterman, of Detroit, an officer of the National Lincoln Highway commission.
>
> When a meeting was held some time ago Mr. Fieldhouse said he would be one of the twenty-five persons to pay the expense of improving the road south of the river from the Concord township line to the St. Joseph township line, a distance of three miles.

J. C. Boss was evidently impressed by this proposition for at last night's meeting he said if the rest of the road was properly improved he would at his own expense construct a roadway of brick fourteen feet wide along his property in Baugo township, a distance of one-half mile. The road to be thus improved runs past the old Boss homestead.

This would leave but two and one-half miles to improve to reach the St. Joseph county line. The county commissioners have advertised for bids for the improvement of the stretch of road two-thirds of a mile in length extending from the city limits to Baugo township and this roadway will be improved in the early Spring. The proposition is to build the three miles through Baugo township of brick and Mr. Boss is the first to come forward with a generous proposition following the suggestion of Mr. Fieldhouse.

Questions Claude Smith's Patent on Steel Kilns

An interesting letter has reached us, written by E. Schmatolla, combustion and ceramic engineer, of 150 Nassau street, New York. He says:

> To Mr. Grayer's article on the Claude Smith kiln, I wish to say that it is important for many of your subscribers to know the number of the patent by which the use of a steel jacket for brick kilns is secured to Mr. Smith. I am astonished that he claims such a patent, after steel jackets have been generally used for all kinds of furnaces and kilns in this country. All lime kilns f. i. are built in steel jackets. In this country where bricklayer wages are very high, it is simply natural to use steel jackets instead of heavy walls which take much room, absorb much heat, and must be tied by heavy steel bands to prevent cracking.
>
> In my article which is published in your issue of December 16, 1913, I also described a kiln which is completely built in steel jackets, the same as the furnace or generator, and the flues, but I did not mean to claim a patent on using this steel jacket, which I regard as free.
>
> The natural development of the brick industry in this country brings out the steel incased kiln and the continuous or combined kilns, where all the heat which is produced by combustion of coal is used for burning and drying, and not wasted.

Mr. Schmatolla's letter is to the point. He certainly believes in the steel incased kiln, even though he doubts the validity of any patent that may be pending for its use.

Cement Silo Casualties.

Charles Lawhead, of the Lawhead Brick & Tile Works, of Loogootee, Ind., writes:

> We herewith hand you an extract from our local paper which reads as follows: "'Phil. McGovern, who owns a large stock farm just south of the city, lost three fine mules and expects to lose several more. Mr. McGovern says that feeding mules from a concrete silo was the direct cause of the death of the mules. The silage is poisoned for 18 inches all around the edges, caused by the concrete's not being air-proof.'"

As has been said—"If it's good it isn't cheap and if it's cheap it isn't good."

Would Like "Brick and Clay Record" Weekly.

In view of the question raised in the Editor's Corner, in the May 5 issue, relative to the semi-monthly publication of this journal, the following letter, from Daniel Greenawald, president of the Schuylkill Pressed Brick Company, of Schuylkill Haven, Pa., is pertinent:

> I think "Brick and Clay Record" is worth its weight in gold to the man that sticks in mud, as all of we brickmakers do, from morning to evening, for it keeps us posted on the trade's problems throughout our big country for only $2.00 a year. I think that every brickmaker should subscribe for it, if he is not receiving it at this time, and then read it from cover to cover. I know that I receive great benefit from it, by reading it well, and I only find one fault with it—that it is not published weekly instead of semi-monthly. We have just added a new brick to our line, which we have had a great demand for—it is a rough textured brick and is very attractive. We are ready to send samples to any dealer covering a territory in which we are not represented, or any architect or contractor who wants a good rough textured brick at the right price.

Since Mr. Greenawald has said kind things about us, we are not going to say a word about our Pink Section, in which a small card would catch the eye of the best brick sellers in the country, some of whom, in all probability, are anxious to secure samples and prices—and exclusive territory—on this new rough textured brick.

The "Reciprocity of Clay."

H. R. Straight is superintendent of the Adel (Iowa) Clay Products Company. He makes 4 in. to 24 in. vitrified drain tile, building brick, silo blocks and blocks for corn cribs. Note what he says regarding paving brick—something he does not make:

> There has been ordered, here in Adel, nearly one and a half miles of paving, and unless we can show from very good proofs that concrete is not the stuff, it is likely to be used. Please send us at once, some literature so that will prove to our council the error of its belief. Please give me the address of the secretary of the Western Paving Brick Association.

A batch of reprints from "Brick and Clay Record" were sent Mr. Straight, including "The Truth About the Wayne County Roads," "Governor Glynn Urges Use of Brick for Roads" and "Chicago's Concrete Streets a Failure" and an urgent letter sent to Secretary Thurston of the Western Paving Brick Manufacturers' Association, asking him to "get busy" at Adel, and turn the tide to brick.

What is "Second Quality" Face Brick?

H. W. Holmes, general manager of the Puritan Brick Company, of Detroit, Mich., writes, relative to an article that appeared some months ago, in "Brick and Clay Record" on "Selling Face Brick on Public Buildings." He says, in part:

> The article is a very good one and I agree with you on almost all points. There is certainly a lot of abuse, a lot of misunderstanding and a lot of dissatisfaction arising from the causes you set forth. There certainly should be some movement made in the very near future to the end that these evils be eliminated. I appreciate that you could not probably handle the subject quite as radically or as forcefully as you might have liked, for fear of bringing down the wrath of Heaven on your head from one or two directions. This general evil is a broad and somewhat complicated one also, and the points which you brought up are very much interwoven with the other faults and troubles, all of which will have to be eventually corrected, but which will be a full sized man's job to accomplish.
>
> One point on which I wish to express a few thoughts rather contrary to the thought you bring out is in connection with the subject of first grade, second grade or off-shade brick. You state that many jobs are ruined and much trouble brought to the brick industry generally through the serving and urging the sale of second quality or off-shade brick on certain public jobs. I heartily agree with you. At the same time, there is just as much trouble caused through the lack of interpretation of the words "first quality" and "second quality." As you very well know, there is no standard of quality in the manufacture of face brick. Every plant does and, under present conditions, is justified in calling the best brick it makes "first quality."
>
> At the same time, there are plants which, through lack of facilities, or through lack of care or through lack of good material, cannot make a brick, even though it be its very best, which will rank alongside of the product of some other factory. There are factories, on the other hand, which through the use of very favorable materials or through exceptionally good management and good equipment, can manufacture brick very much above the average. Very often a second quality brick from one of these exceptionally good factories is very superior to a first quality brick from one of the poor ones. The poor factory is generally the one also which, for one reason or another—probably because its material does average poorly—cannot get a good price. That factory is con-

stantly coming onto jobs and submitting a brick which their representative, with all the strenuousness possible in a salesman, represents as being absolutely first quality and at the same time which he can sell at dollars below the first quality and probably dollars below the second quality brick of some better factory. He is probably equipped also with one or two good samples, which can be picked up at any plant.

A large number of architects and most building committees are completely hoodwinked by this discussion of first and second quality brick and of course are favorable to the use of a first quality brick over a second quality, so that very often a job goes to a poor factory which can only furnish a poor brick and the job is consequently not up to what it might have been, whereas a second quality brick from some other factory would have produced much better results. Such factories, for instance, as the Kittaning factory, have second quality brick which are infinitely better than many plants can make as first quality. Some plants, of course, have adopted the system now of giving their second quality brick a separate shade number and not recognizing the quality as being either first or second. Some day there will be a way devised of establishing a standard for a brick so that a low priced brick can be sold on its merits and not through some mix up terms.

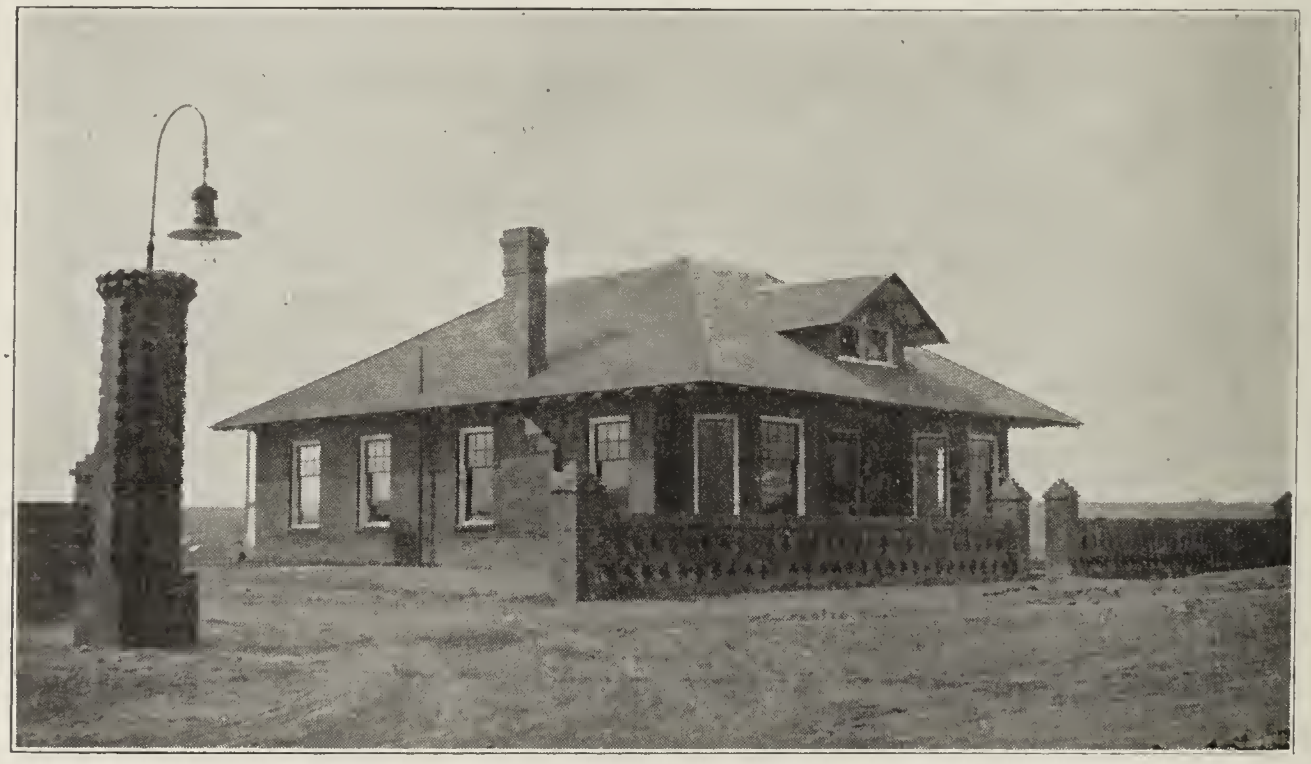
Personally, I am of the opinion that every brick sold—no matter where it is sold—should be sold on a basis and at a price such as would have to be established by a brick sales company. In other words, it is entirely wrong for a factory to name any prices, under any conditions, on a job, either to the owners or contractors, at the same figures that they would name to their agents. As you know, there are disturbances in the atmosphere as a result of these conditions which I hope will eventually bring about some improvement.

I trust that your magazine will keep on plugging on the points outlined in your paper, as they are good ones, and conditions can only be eventually improved by general sentiment being worked up.

"Brick and Clay Record" has an article that Mr. Holmes has written, on the subject of "Price Cutting vs. Salesmanship," which it hopes to publish in a near subsequent issue.

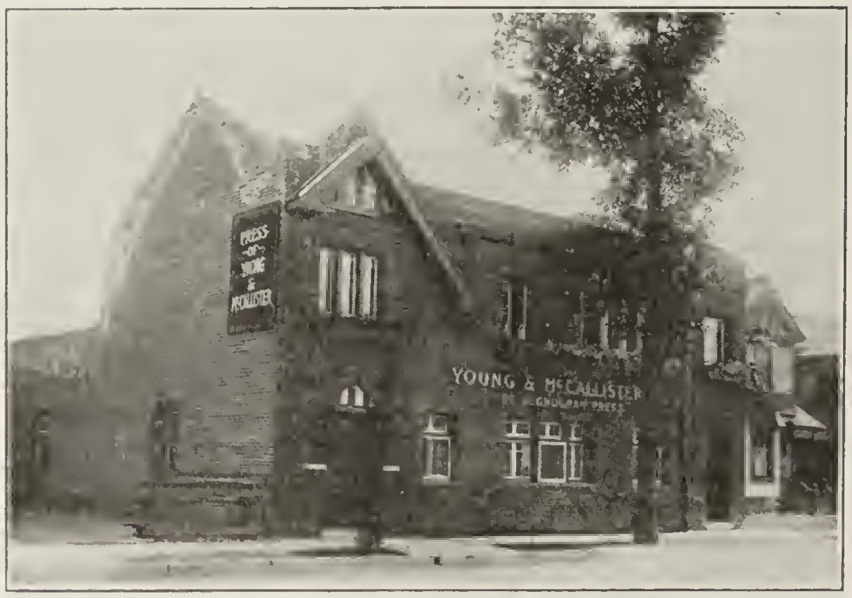
A Brick Lamp Post and a Brick Sales Office in Alberta

A NOVEL lamp post of brick is being used on Broadway, the principal business street of Redcliff, Alberta, and has been the subject of much favorable comment from visitors and others. It is to be surmounted by ornamental iron work and cluster lights, and has the benefit of being of brick, so being in harmony with the building scheme of the business blocks of the town. It is also cheaper than a lamp post made entirely of ornamental iron. The idea originated with Manager Bryant, of the Redcliff Clay Products Company, whose office is shown in the illustration.



Office of the Redcliff (Alta.) Clay Products Company.

Printing Office Built of Burned Clay in Los Angeles, Cal.



The accompanying illustration shows a printing office of unique design recently completed in Los Angeles, Cal., for the Segnogram Press of that city. The front part of the building is two stories in height and is used for the offices and art rooms. In the rear, which is but one story high, is located the large, well-lighted work room. The design of the front part of the building is particularly interesting and attractive, suggesting old English architecture and resembling a residence more than office and shop. Excepting the roof, which is of tile, and the finishing timbers, the building is constructed entirely of red brick, of excellent masonry. There are numerous casement windows in the front, many of which have window boxes and the door of the front entrance possessess an old type knocker. The interior is finished in keeping with the exterior, maintaining the old English style. The building cost approximately $10,000.

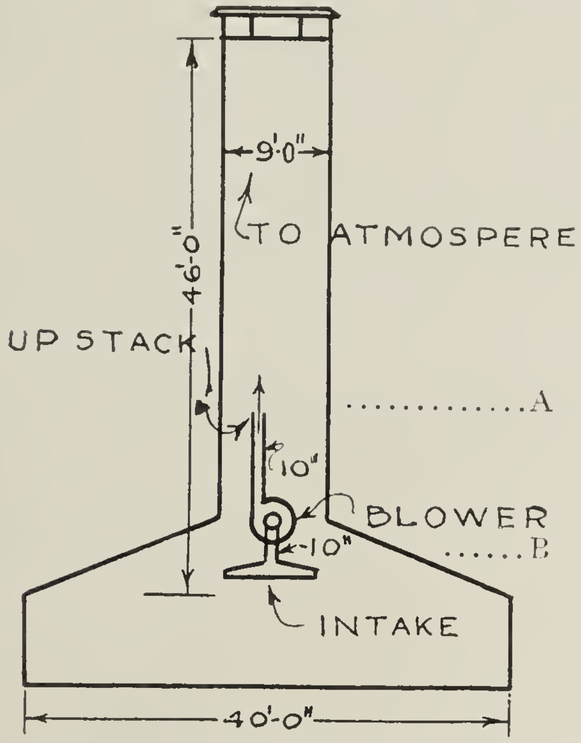
Questions and Answers

A Department for the Solution of the Knotty Problems Confronting the Clay Worker

This department was inaugurated to be of material benefit to the readers of "Brick and Clay Record" and no charge is made for the service given. The advice of the world's recognized authorities in ceramics is offered to clayworkers who are invited to avail themselves of the opportunity to have their problems solved here. Should a reply be desired by letter enclose a stamped and addressed envelope for reply.

Proper Location for Fan in Stack.

466. *Saskatchewan—We are using a National drier for brick, using a stack for circulation, which is affected a great deal by weather. We have a No. 5 Sheldon blower fan, ten inch discharge and intake, which is not in use. We are planning on installing this in the stack as per enclosed sketch, to aid the circulation. Should the discharge be at A or B to get the most effective results? The fan runs at 2,000 rev. per min. If the experiment works, we will probably take off the stack and put in the proper size fan.*



We would recommend the fan discharge as at A, so as to blow up the stack and assist in the draft already there. We would suggest, however, that the fan be used for only one of the tracks, if yours are single track tunnels or for two, if they are double track, as the effect of the fan would be lost over seven tracks, owing to the small size.

Wants Information About Kaolin.

402. *Illinois—I would appreciate it if you would advise me whether you have any data on the location, extent and value of kaolin deposits in the United States, or whether such information is published.*

Professional paper No. 11, of the United States Geological Survey, 1903, is entitled "The Clays of the United States East of the Mississippi River" and is by Heinrich Ries. This is a most comprehensive report, but is no longer available for distribution at the Survey. It may be procured, however, from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 40 cents. The Bureau of Mines has recently issued an interesting report on the mining and treatment of feldspar and kaolin in the southern Appalachian region, which may be procured from the Survey. No information of a public nature is available, as to the value of kaolin.

Wants Pointers on Burning With Oil.

453. *Minnesota—We are burning our brick with oil and if you know of any concern doing the same (outside of Chicago), we would thank you to put us in touch with them, as we would like to get some pointers on the different methods employed in taking off the water smoke.*

The Benton Harbor Brick & Tile Company, at Benton Harbor, Mich.; the Buffalo Brick Company, at Buffalo, Kas.; the Fredonia Brick Company, at Fredonia, Kas.; the Corsicana Brick Company, at Corsicana, Tex.; the Ferris Brick Company, at Ferris, Tex.; and practically all of the yards at Detroit, Mich., use oil in burning their brick.

Wants Books on Drying Brick.

419. *Illinois—We want to buy some books for our Superintendent and Head Burner that will give them some practical hints on new and up-to-date drying methods as applied to brickmaking plants.*

We beg to call your attention to the answer given a subscriber on page 1057 of the May 5 issue, as well as to the answer given to subscriber No. 430 on page 1055 of the same issue. In the Dec. 16, 1913, issue, you will find an article on the "Design of an Economic Furnace for Tunnel Drying" by S. C. Karzen; in the Dec. 2, 1913, issue, an article by H. C. Russell, "Making Your Dryer Efficient"; in the Oct. 21, 1913, issue, Ellis Lovejoy replies to a question on dryers, asked by subscriber No. 178. A search through the files of this magazine will give you a fund of information on this subject.

Opportunities in Washington.

230. *Illinois—Could you or any of the readers of "Brick and Clay Record" inform me as to the prospects or possibilities of the drain tile trade in Skagit or Whatcom counties in Washington?*

This question was published in the Dec. 16, 1913, issue and recently a letter reached us from C. B. Mayhugh, of La Conner, Skagit county, Wash., who has been engaged in building the Winlock (Wash.) Brick & Tile Company's plant. He states that he is well informed as to the demand for hollow ware in the counties our Illinois correspondent mentioned, as well as in the entire state of Washington. He says he is perfect willing to impart the knowledge to anyone who cares to write him for it.

Wants List of Foreign Papers.

449. *Illinois—Have you on file, or can you tell me where I can buy copies of English trade journals, such as reach the same class of subscribers in England as the "American Contractor," "Construction News" and "Engineering Record" reach in America?*

Brentano's in New York city gives a list that includes the following: "Architect and Contract Reporter," "Architect & Builders' Journal," "Architectural Review," "British Architect," "Irish Architect," "The Builder," "Building News," "Building Industries," "Building World," "Concrete and Constructional Engineering." The following are given us by the "Engineering Record": "Surveyor," 24 Bride-Lane, London, E. C.; "Engineering," 35-36 Bedford St., Strand, London, W. C., and "The Engineer," 33 Norfolk St., Strand, London, W. C.

Wants Books on Scumming.

447. *Illinois—Please give us the names of the best books on scumming or efflorescence, and its prevention.*

"Scumming and Efflorescence" by Ellis Lovejoy, E. M., may be obtained through our book department. Your attention is called particularly to the articles on this subject that have been published in "Brick and Clay Record" during the past year, on the following dates: May 5, 1914, pages 1049 and 1050; March 7, page 592; Feb. 3, page 370; Jan. 20, page 262; Dec. 2, 1913, page 1150; Nov. 18, pages 1017 and 1037; Nov. 4, page 909; Oct. 21, page 805, and July 15, page 156.

Wants Information on Deposits of Sand.

454. *New York—We would like to know if there are any books published that give the location, extent and value of deposits of sand such as is used in the manufacture of brick.*

Sand is used in a comparatively small way by nearly all brick yards, to separate the brick as they are set in the kilns, for sanding the molds, in some soft-mud plants, and, in others, to give the brick a coating of combined sand and red oxide to the surface of the brick as it comes from the brick machine and before it reaches the cut off. The larger use is in the manufacture of sand-lime and silica brick. We do not know of any book that gives the information you require, and do not believe any have been written.

W. E. Plummer, Jr., secretary of the Sand Lime Brick Association, 211 Fillmore Avenue, Buffalo, N. Y., writes:

"There is no source that I know of where you can obtain the information relative to sand deposits suitable for the manufacture of sand-lime brick. As a matter of fact, there is very little bank sand in this country or Canada that will not make good sand-lime brick when properly handled, and today most of the sand-lime brick machinery manufacturers are equipped to make laboratory tests. In my opinion, however, the best way is to make arrangements with some sandlime brick manufacturer, either by correspondence, or personal interview and then send him at least 2,000 lbs. of sand, and the required amount of quick-lime from the supply which it is expected to use, in case the tests are satisfactory. In this way, what we call a commercial test could be made and this will show absolutely what the sand and lime will produce when handled as a business proposition. There is, of course, some little expense attached to this, but it will give the proper assurance that the sand is capable of producing merchantable brick, or otherwise."

Wants More "Grog" Than He Is Getting.

448. *Iowa—I am engaged in the manufacture of large drain tile and sewer pipe and the clay is of such a nature that in order to keep it from slabbing in the kilns a large amount of grog is necessary. Our kilns do not begin to furnish the necessary amount of grog. I thought that perhaps some of your readers might, at some time, have been in the same position and would like to know what means they used to obtain this material. I might add that we tried to use sand to take the place of grog, but it does not produce the desired results.*

As our subscriber suggests, we are putting this question up to our readers. What would you do, if your kilns did not produce a sufficient quantity of grog to insure your ware's coming from the kiln in perfect condition?

Brick Crack in Kiln.

459. *Texas—We hand you herewith an analysis of our clay, as given by the University of Texas. We are troubled with our brick cracking in the kiln, seemingly caused by expansion during hot firing. Crack appearing on two-inch face of brick generally about the middle and crack running towards center of brick. It also seems that we have not enough iron oxide, or coloring agent in our clay to give our ware a good red color, only that which is exposed to intense heat, for we are getting too many pale brick in bottom of kilns that are burned hard enough, but haven't the color.*

We would like to know if there is any chemical or mineral that we can use with our clay acting as a coloring agent without too much additional expense in manufacturing. We are using round down-draft kilns, water smoking or drying with coal and finishing with oil.

Please advise us as to handling fires and time we should take in heating up kiln and burning. At present we are water smoking a thirty-foot kiln containing about 80,000 stiff-mud brick from five to six days and finishing kiln in about sixty hours.

What effect would too much or not enough air going into kiln in heating up period have on ware? Any information or advice would be greatly appreciated.

The analysis is as follows:

Contains	Dry basis
Silica	77.38
Alumina	13.33
Oxide of Iron	3.27
Lime	.60
Magnesia	None
Carbonic Acid	None
Sulphuric Acid	None
Loss on Ignition	6.16
	100.74

This would seem to indicate that it is a variety of silt. The cracking difficulty which you describe is explained by the extremely high silica content. It is a well known fact that silica changes into another form at about 900° C. (1652° F.), known as tridymite, and this conversion is accompanied by an increase in volume. It follows, therefore, that if a clay is extremely high in silica, as yours is, it is very apt to develop cracks when heated above 900° C. due to the strains developed by the increase in volume. This phenomenon (the expansion) is inherent in the material itself and cannot be eliminated. However, you may be able to eliminate the cracks by adding, say, 25 per cent of some suitable plastic clay.

The percentage of iron shown in the analysis, while by no means high, should still be enough to produce a red color on burning, provided it is thoroughly disseminated throughout the clay.

It would not be practical to attempt to develop a suitable color by the addition of some colorant like ferric oxide because of the impossibility to produce the necessary dissemination.

You can probably darken your brick somewhat by firing with reducing conditions or deficiency of air.

Unless your clay is extremely tender, the period of water smoking is somewhat lengthy. Thirty-six to forty-eight hours should suffice ordinarily.

An excess of air in firing means low fuel economy because of the resultant dilution of the combustion gases. Any excess of air beyond that actually needed for combustion means an increased consumption of fuel from which you derive no benefit.

An excess of air would have no effect on the ware other than would mere oxidizing conditions. A deficiency in the amount of air used implies reducing conditions, which as mentioned, among other things, would tend to reduce the iron, giving darker colors.

Roofing Tile Manufacture.

396. *Kentucky—We would like to have some information on the status of the roofing tile business in this country, especially in Kentucky. Is there a good demand for roofing tile? It seems that we are unfortunately located for a drain tile plant and we are wondering if we could not use our round-down-draft kilns and drain tile machinery profitably in the production of roofing tile provided our clay is suitable. We understand that we would have to add some more machinery.*

The above question was published in the April 21 issue. Under date of May 4, George H. Williams, of Roanoke, Ill., writes:

"Will you kindly give me the name of the subscriber that wants to get some information on roofing tile, and whose inquiry you publish as No. 396? I believe that I can give him some good pointers on the manufacture of this clay product. While it is true that roofing tile in this country is in its infancy, there is a good reason—one thing is, that the price is entirely too high. To overcome this, we must manufacture more tile and make them more cheaply."

The name of the inquirer was sent to Mr. Williams, for, as we have previously stated, we will do this, in the absence of a request on the part of subscribers who write to this department, that their names be withheld.

Wants Formulae for Coloring Mortar.

457. *Quebec—Will you please answer the folowing question in the next issue of "Brick and Clay Record"—What is the best composition for coloring lime and cement mortar?*

The greatest difficulty in securing stable colors for lime and cement mortars is due to the action of lime on many colorants. The most satisfactory pigments are the metallic oxides. Hematite or Fe_2O_3 is most commonly employed for the red colors, while the brown oxide of iron is used for buffs and browns. Yellows are obtained by use of ochre. The best greens are obtained by the use of chromium oxide, but this of course is very expensive. Ultramarine green is very satisfactory as far as color is concerned, but it is gradually destroyed by lime. Lamp black is most commonly employed as a pigment in the production of black.

We would advise you to get in touch with some of the concerns manufacturing mortar and cement pigments such as, Samuel Cabot, Inc., Manufacturing Chemists, Boston, Mass.; Chattanooga Paint Co., Chattanooga, Tenn.; C. K. Williams & Co., Easton, Pa.; Clinton Metallic Paint Co., Clinton, N. Y., or Ricketson Mineral Paint Works, Milwaukee, Wis.

Copyrighted Names on Face Brick.

390. *California—Some four or five months ago the writer read an editorial in "Brick and Clay Record" relative to copyrighted names applying particularly to rough texture face brick. It is his recollection that among the various names suggested which could be protected by trade mark was the word, "Ruftex". We wish to know if this has been copyrighted, as we desire to use it for a new brick which we will be making shortly.*

The above question was published in the April 21 issue. Recently "Brick and Clay Record" received the following letter from one of its correspondents:

"No. 390 California seems to be casting the bread of inquiry upon the circulation of 'Brick and Clay Record' in the hope that it will come back all covered with raspberry jam in the shape of a suggested name for a rough textured face-brick, that has not been copyrighted. Consequently I am making so bold as to offer one that may, or may not be suitable, but it has at least two virtues—it does not appear in the list of trade names published in 'Brick and Clay Record' and it suggests the rich, soft tones that wire-cut-face face-brick invariably gives to buildings in which they are used. I refer to the word 'Plush.'"

Manganese in Connection with Shale.

456. *Quebec—Can you tell us to what degree shale brick should be burned, to fuse manganese?*

Charles F. Binns, director of the New York State School of Clayworking and Ceramics, at Alfred, N. Y., says:

"Manganese is used to darken the color of the brick or tile which may be made from a red burning clay or shale, but its principle use is in the production of gray brick from a light burning clay. It is generally considered that in order to produce an effective gray brick, the temperature should be at approximately cone 6, because at a lower temperature the manganese grains appear as tiny specks, and do not produce a general gray tone. This temperature, however, is far higher than anything generally used for shales. In fact, the use of the manganese must give way to the burning temperature of the shale and whenever vitrification is approached or reached, the brown color will be evident when manganese is used."

Charles S. Kinnison, of the Bureau of Standards at Pittsburgh, Pa., says:

"Manganese is never used in connection with shale in the manufacture of brick. Manganese finds use only in brick burning to a clean light color and it is absolutely essential that the fire be strictly oxidizing in order to develop in the brick a clean light color to act as a background for the black manganese specks. The clay most commonly used in connection with manganese is a No. 2 or 3 fire clay. The temperature needed for the development of the black specks is cone 2 to 3."

An interesting paper on the use of managanese appears in the Technical Department of this issue.

Drain Tile Dreams.

It has been estimated by trained mathematicians that if every farmer in the United States whose land would be bettered to a profitable extent by the use of drain tile should realize that fact and act accordingly, manufacturers of that product would have to quadruple the size of their plants and their working forces, run three shifts a day, work on Sundays and holidays, and keep this up without ceasing; and that their combined products for one day, if placed end to end, would encircle the earth. This may not be exactly accurate, although the mathematicians referred to defy anybody to disprove the correctness of their estimates; but it is certain that the use of clay tile in farm drainage is still in its infancy, and that the field is so immense as to stagger the imagination. All that is necessary is for the manufacturers of tile to go after the business in the right way.

In the Limelight

WILLIAM K. HAMMOND

BLAINE R. SMITH

HARRY C. PODOLSKY

SOMEONE, somewhere, probably knows where brickmaking started in America. Everyone knows, who runs and reads, that the Hudson River brickmaking district is the Greatest (with a capital G) in the country. And William K. Hammond is Dean of the Hudson River brickmakers. He makes the "Hammond" brick at Dutchess Junction, New York, and is an independent distributor in the Metropolitan market, where his brick ranks with the celebrated "Rose" and "Jova" brands—standards in quality for common brick in the east. William K. Hammond was one of the founders of the Building Material Exchange in New York and is still one of its directors. For years, he was president of the Hudson River Brick Manufacturers Association, the usefulness of which was eclipsed by the Greater New York Brick Company, when a majority of the owners of brickyards on the Hudson River subscribed as stockholders in the latter organization.

ONE glance at the illustration above, and anyone can see that Blaine R. Smith's way of doing business is "To look the fellow right in the eye and tell him what's what." He did that in Portland, Oregon, so effectively, as manager of the Western Clay Manufacturing Company that, when Denny-Renton came in and bought the Western Clay people out, they saw to it that Blaine R. Smith was retained, as one of the "visible assets." Recently, the Denny-Rentons have decided that the trade in Seattle, Wash., ought to have some one with a piercing eye look into it —and so they have up-rooted Blaine R. Smith from Portland soil and transferred him to Seattle. Mr. Smith is a Noble of the Mystic Shrine, a Knight Templar and, as a natural sequence, a Mason. His headquarters are in the Hoge Building, in Seattle, and architects, contractors and visiting Shriners will always find a handshake and a smoke somewhere near Blaine R. Smith's desk.

ON the firing line of face brick competition in Chicago stands Harry C. Podolsky, general manager of the Bonner & Marshall Brick Company. Seven years of the strenuous life in a city where "hustling" is a part of each day's incident, has left no easily discerned lines of care on the classic brow that supports a perfectly good crop of hirsuit adornment. Nor has seven years' conflict with the men who want to buy a \$20 face brick for \$17.50 cast any cloud upon the sunny disposition that makes Harry a good fellow to meet —a better to know—and best of all, to hold in close companionship. He began his selling career as Chicago representative of the United Metile Company, a company producing a metal tile with an enameled surface, that was used in bathrooms and other places where a sanitary, easily washed surface was desirable. Following a natural order of events, Harry C. Podolsky gave up this selling of something that displaced a better material, and began the selling of the Zanesville Tile Company's ceramic tile, for walls and floors. From that he came into brick, and since then, brick has been his hobby. It is said that he lives, breathes and talks brick—even in his sleep. He is a member of the Fort Dearborn Club, is a member of the Masonic order, and an active and enthusiastic worker in the Ancient Order of Chaldeans.

Read the Classified Advertisements on Page 1224

This is the Season when Real Bargains are offered in Second Hand Clayworking Machinery, when Good Men are Seeking Positions and Good Positions Seeking Men.

"Brick and Clay Record's" Classified Advertising Section is the Clayworkers' Clearing House. The fee is very small and the results are highly satisfactory.

Concerning Freight Rates

A Department of Vital Importance to Every Manufacturer of and Dealer in Brick, Hollow Tile and Raw Fire Clay

MENTION was made in the April 21 issue of the increase in the rate on building brick, from Watsontown and other points in Pennsylvania, to Chicago rate points. The Watsontown Brick Company has filed a complaint with the Interstate Commerce Commission, and since the form of this complaint is admirable, we are giving it in full for the benefit of our readers.

COMPLAINT.

Before the Interstate Commerce Commission.

Watsontown Brick Co.
vs.
Northern Central Railway Co.
Pennsylvania Company.

The complaint of the above-named complainant respectfully shows:

I. That the above-named complainant is a manufacturer of brick and a corporation chartered under the laws of the State of Pennsylvania, with its plant in Delaware Township, Northumberland County, Pennsylvania, and its principle office in the Borough of Watsontown, Northumberland County, Pennsylvania.

II. That the defendant above named is a common carrier engaged in the transportation of passengers and property, wholly by railroad between points in the State of Pennsylvania and points in the states east of the Mississippi river, and as such common carrier is subject to the provisions of the act to regulate commerce approved February 4, 1887, and acts amendatory thereof and supplementary thereto.

III. That the above named defendant, by its Supplement No. 4 to G. O.-I. C. C. No. 4363, which went into effect January 15th, 1914, has raised its rate, from its Watsontown station, on brick, clay and clay products, about thirty-six (36%) per cent, the rate of competitors being left the same.

Example.

Paxtonville, Pa., to Chicago, Ill., $2.65 per ton; Bradford, Pa., to Chicago, Ill., $2.15 per ton; Watsontown, Pa., to Chicago, Ill., $3.60 per ton. The distance from Paxtonville, Pa., to Chicago, via Pennsylvania lines, is six hundred and eighty-five (685) miles; from Bradford, Pa., to Chicago, via Pennsylvania Lines, is six hundred and ninety-seven (697) miles; from Watsontown, Pa., to Chicago via Pennsylvania Lines, is six hundred and ninety-eight (698) miles. The complainant does say that the rate of $3.60 per ton is unjust, unreasonable and discriminatory in violation of sections 1, 2 and 3 of the act to regulate commerce.

Wherefore, complainant prays that defendants may be severally required to answer the charges herein; that after due hearing and investigation an order be made commanding said defendants and each of them to cease and desist from the aforesaid violation of said act to regulate commerce, establish, put in force, and apply as a maximum in the future to the transportation of brick, clay and clay products, between Watsontown, Pa., and Chicago, Ill., in lieu of the rate named in paragraph three such other rate as the Commission may deem reasonable and just, and that such other and further order or orders be made as the Commission may consider proper in the premises and complainant's cause may appear to require.

Dated at Watsontown, Pa., April 8, 1914.

Watsontown Brick Company, Complainant.

The "Five Per Cent" Increase.

There is some division of opinion as to the exact meaning of the much discussed "5 per cent increase" in freight rates. In order that this may be cleared up for "Brick and Clay Record" readers, the following explanation is given:

"The railroad companies have used the following method of arriving at their proposed 5 per cent increase" says the General Traffic Association, of Washington, D. C., "wherever the rate is less than $1.00 per net ton, they have added 5 cents per net ton, and where the rate is $1.00 or more, they have added 5 per cent. As a consequence, where the rates ranged from 40 cents per net ton to $3.00, the increases would be, on the short haul, 5 cents, or 12½ per cent, while the long haul would be 15 cents, or 5 per cent."

From this it will be seen that the plant that depends upon a semi-local trade will be made to bear the brunt of the proposed increase. As usual, the little fellow gets the worst of it.

Changes in freight rates, so far as they affect clay and clay products, and which are in effect at the date of this issue, are as follows:

From Eastern Points.

From Brownstone, Pa., brick, to Hazard, Northampton and Palmerton, Pa., $1.05 per net ton.

From Middle West Points.

From Alton, Ill., brick, to Wellsville, Mo., 7½c per cwt.

From Clinton, Ind., and Danville, Ill., to Cape Girardeau, Mo., $1.70 per net ton.

From Marietta, Ohio, brick and blocks, to Sarnia, Ont., $2.10 per net ton; to Windsor, Ont., $1.95 per net ton.

From Marion, Ill., brick, building and paving, to Gale, Ill., and to Thebes, Ill., 45c per net ton.

From Morenci, Mich., brick, building, and fireproofing, to Adrian, Mich., 75c per net ton; to Ann Arbor Mich., 1.00 per net ton; to Fort Wayne, Ind., $1.00 per net ton; to Toledo, Ohio, 75c per net ton.

From West Salem, Ill., brick and articles taking same rates, to O'Fallon, Lebanon, Summerfield, Trenton, Aviston, Breese, Beckmeyer, Carlyle, Huey and Ferrin, Ill. $1.15 per net ton; to Shattuck, Salem and Bannister, Ill., $1.10 per net ton; to Danville, Brewer, Grape Creek, Westville, Steelton, Riola, Indianola, Sidell, Hastings, Allerton, Broadlands, Long View, Fairland, Villa, Grove, West Ridge, Craigs, Bourbon, Arthur, Cadwell, Chipps, Kirksville, Findlay, Duvall and Shelbyville, Ill., $1.00 per net ton. This tariff gives numerous other rates. The file number is Illinois Central I. C. C. A8611, effective May 6.

From Southern Points.

From Ashland, Ky., Coal Grove, Ironton, Portsmouth and Sciotoville, Ohio, fire brick, to Fernandina, Fla., 18c per cwt; to Montgomery, Ala., 22c per cwt; to Nashville, Tenn., 12c per cwt.; to Knoxville, Tenn., 12½c per cwt. This tariff gives rates to various other southern points.

From Ashland, Ky., Coal Grove, Ironton, Portsmouth and Sciotoville, Ohio, fire clay, to Fernandina, Fla., 16c per cwt.; to Montgomery, Ala., 21c per cwt.; to Nashville, Tenn., 12c per cwt.; to Knoxville, Tenn., 12½c per cwt. This tariff gives rates to various other southern points.

From Saspamco, Tex., sewer-pipe, to Mina Ora, Mex., $9.55 per net ton; to San Jose, Mex., $9.56 per net ton; to Villa Verde, Mex., $9.57 per net ton; to Mesa, Mex., $9.58 per net ton; to Del Rio, Mex., 9.50 per net ton; to Cananea, Mex., $9.60 per net ton.

From Western Points.

From Cape Girardeau, Mo., to Clinton, Ind., and Danville, Ill., $1.70 per net ton.

From Denver, Colo., brick, common and pressed, to Raton, New Mex., 16c per cwt.

From Fulton and Vandalia, Mo., brick, to Council Bluffs, Iowa, Omaha and South Omaha, Neb., 7½c per cwt; to St. Charles, Mo., 5c per cwt.

From Mexico, Mo., fire brick, to Ilasco, Mungers Switch, Hannibal, Bear Creek and Oakwood, Mo., 4½c per cwt.

From Pueblo, Colo., brick, common or pressed, to Raton, New Mex., 10c per cwt; to Gardiner, Blossburg and Brilliant, New Mex., 11c per cwt; to Van Houten, New Mex., 11c per cwt..

From Sioux City, Iowa, brick, to Spirit Lake, Iowa, 6.2c per cwt.

Pottery Notes

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

The Guernsey Earthenware Company, Cambridge, Ohio, has completed the foundations for three new buildings, one of which will be 200x298 feet, and the others 60x60 feet each. W. C. Handshy & Son, of Zanesville, Ohio, are doing the construction work on a percentage basis. Considerable material is still to be purchased.

Surprise was expressed by American manufacturing potters when it became known that Assistant Secretary of the Treasury Milburn had notified the collector of the port at Baltimore that vitrified hotel china was to be admitted into this country at 35 and 40 per cent ad valorem instead of at 50 and 55 per cent, as it was believed was the intent of the Underwood law. Protest was at once filed with the department by Hon. William Burgess, vice-president of the United States Potters' association.

The text of the decision as filed with the collector at Baltimore, follows:

"The department duly received your letter of December 3, 1913, relative to the proper classification of certain goods commercially known as vitrified earthenware, semi-porcelain earthenware and vitrified hotel ware, which it appears is variously classified under paragraphs 79 and 80 of the tariff act of October 3, 1913.

"Paragraph 80 provides for china and porcelain wares composed of a vitrified non-absorbent body which when broken shows a vitrified or vitreous or semi-vitrified or semi-vitreous fracture. In the view of the department, earthenware to be dutiable under the provisions cited must not only be composed of a vitrified non-absorbent body, but must be commercially known as china or porcelain, and as it is conceded that the wares the subject of your letter are not commercially known as china or porcelain, it follows that they are not dutiable under paragraph 80, even though tests have shown that some of the wares are only slightly absorbent.

"In view of the foregoing and as it appears that all the wares under consideration are in a greater or less degree absorbent you are hereby directed to assess duty thereon under paragraph 79 of the tariff act at the rate of 35 per cent ad valorem, if not painted, colored, tinted, stained, enameled, gilded, printed, ornamented or decorated in any manner and at the rate of 40 per centum ad valorem if ornamented or decorated by any of the processes above described."

That the decision will have a far-reaching influence on the American pottery trade if it is allowed to stand is well understood by those in touch with the details of the law and the features by which it is administered.

When the Underwood bill was passed it was understood that the classification of china and earthenware was such as to take something of the sting from the greatly reduced duty which the domestic manufacturers were called upon to face.

It is reported in Wheeling, W. Va., that the proposition of the Steubenville Pottery Company, to take over the plant of the LaBelle pottery, there, which was considered six months ago, has been revived. It is understood that the deal has been practically closed whereby the Steubenville concern will occupy the big plant, which is the most modernly equipped in that section, and manufacturer its general line. Last Winter this matter was taken up through the Wheeling board of trade, but the firms failed to get together and the matter was dropped. If the plan has been revived and is put through it means that Wheeling will have one of the largest potteries in that section.

After remaining idle for many years, the Chaseland pottery plant, at Worthington, a few miles north of Columbus, Ohio, is to be placed in operation, but as a tile plant. George F. Brunt, for many years owner and manager of the Brunt Porcelain works at East Liverpool, Ohio, whose plant was taken over by the General Porcelain Company, last year, with J. A. Nagle, of Zanesville, Ohio, will take over the Chaseland pottery. With it the new owners will secure clear title to eight acres of land. Both floor and wall tile will be manufactured by the new owners. The Chaseland plant has a capacity of nine kilns. It is located on the Big Four railroad, and the plant physically is one of the best built. Buildings are of brick, and all floors are of concrete. Clays enter at one end of the building and are packed for shipment in the opposite end.

When the General Porcelain Company took over the electric porcelain potteries in the East Liverpool district, a plan was devised to consolidate all business. With this end in view a mammoth plant was built at Parkersburg, W. Va., and it has recently been placed in operation. Mr. Brunt then looked around for another business, and has just closed the deal for the Chaseland property. It will be prepared for active operations in the shortest possible time. Mr. Nagle has been identified with the tile business for many years.

There is no truth in the report that the Consolidated Manufacturing Company, of Chester, W. Va., had given up its intent to erect a pottery for manufacturing general ware at Grafton, W. Va. The fact of the matter is, this concern is going ahead with its plans, and its seven kilns will soon be topped out. The walls are about story high, and these will be ready for the roof soon. At either end of the plant, the buildings will be two stories in height, but the center section will only be one story high. There will be three pairs of or six decorating kilns built. This company is now decorating pottery in the East Liverpool district, buying the white and using a part of the former Brunt Pottery Company's plant for decorating purposes.

The manufacturing of saggers on a large scale by machinery has been started under the management of William Polk at the plant of the East Liverpool Sagger Company, at East Liverpool, Ohio. This machine will manufacture two saggers of any size per minute. In tests, it has been proven that the machine-made sagger is stronger and stands more wear than does the sagger made by hand. This sagger machine was invented several years ago, and was given its first successful trial in the former plant of the Sevres China Company, at Ford City Pa., which property later came under the management of Charles Howell Cook, of the Cook Pottery Company, of Trenton, N. J.

By the erection of new buildings for the clay shops, and the erection of an additional kiln, the Smith-Phillips China Company, of East Liverpool, Ohio, plans to double its present capacity. The capacity of the boiler room and the decorating shops is also to be increased.

From present indications, plans are nearing completion at Pittsburgh, Pa., for the formation of a company to go into the sanitary pottery business, but the location of a plant has not been decided upon. It is related that this concern plans to manufacture sanitary pottery by a new method, which has the ear marks of having possibilities which would not be just to the liking of present day sanitary pottery manufacturers. Utmost secrecy is being maintained by those said to be concerned in the success of the new company. From patents already granted, and other inventions ready to be filed, it is admitted that if sanitary ware is made by the method described the industry will be revolutionized. Several idle plants in the western pottery district were inspected recently, with a view of purchase by this new company.

Conditions in the general ware pottery business was never better than now. Deliveries are unusually slow in many instances, which indicates the manufacturers are crowded with business. All people who want work in potteries can obtain employment, in fact, the demand for workers is increasing.

Operative potters this week started to cast referendum ballots for national officers. Those elected will take office at the coming Atlantic City convention.

Prize Problem Contest

A Series of Problems That Are Submitted to Our Readers and a Reward Given for the Most Practical Solution

In the December 2, 1913, issue, "Brick and Clay Record" inaugurated a Prize Problem Contest, in which a three years' subscription is given with each of the ten succeeding issues, for the best answer to each problem. Eight of these problems have already been disposed of, the prize winning answer to the ninth is printed below, together with the tenth problem, which will close the series.

PROBLEM NO. 9

What would you do if you were manufacturing face-brick and depended upon certain cities within a radius of 100 miles from your plant to take the greater part of your output and pay you a price that enabled you to make a lower yard price to dealers in more distant markets, and, the demand in one or more of these nearby cities having fallen off quickly, the dealers told you your prices were too high. What would you do?

The best answer to the above problem was sent us by Thomas A. Roe, 562 West 173rd St., New York. It follows:

It seems to me that the best answer to this "problem" is to ask a question—why make a face-brick that is either so poor, or so high in cost of production that its competitive radius is a bare 100 miles? There is no doubt but that face-brick is the most highly competitive material produced from burned clay, and, weight considered (weight affecting the cost of transportation) no burned clay product enters such distant markets. The radius of competition is limited only by the excellence of the color, the structure or the texture. This is proven by the shipments that are frequently made from points in western Pennsylvania, Ohio and Indiana to the Pacific Coast. So-called "rain-drop" brick were shipped from the Sayre and Fisher plant at Sayreville, N. J., to Chicago, prior to the days of the World's Fair, and entered into some of the big educational buildings in that city. "Harvard" brick, from Epping and Gonic, New Hamp., are shipped to points in northern Minnesota.

Novelty in texture and peculiarities in color, coupled with dense structure and intrinsic artistic qualities enable face-brick to overcome distances, when those distances are measured in thousands of miles, and multiplied by a high freight rate.

Yet here we have a man who lamely "depends" upon cities within a 100-mile radius "to take the greater part of his output!"

Taking one point in Indiana, with which I am very familiar, I find that the freight on face-brick (figuring a 6 lb. brick) is $1.20 per M. brick for a haul of 19 miles. This increases with distance, until a haul of 100 miles costs $2.85 per M. brick and 160 miles $3.00 per M. Here is a freight differential of $1.80 per M. brick between the shortest haul that is profitable to make by railroad and a distance half again as great as the man with your "problem" has named as his limit for "the greater part of his output."

My "solution" is—stop depending on that nearby market and make a brick that is good enough and novel

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enough to find its way to cities 400 and 500 miles away. Other manufacturers do it—why not you?

If the brick you make is as good as you can make it and the texture so good that it cannot be improved upon, hire a salesman that has a general knowledge of what different cities use, and pay for. Send him to these cities, and build up a trade in them. If the cost of production is so great that the brick will not stand the added cost of selling and the increased freight, the chances are that you need a plant manager as badly as you need a salesman. If that is the case, you are keeping two good men out of a job and trying to do something yourself that you evidently are not fitted to do.

PROBLEM NO. 10.

What would you do if you found that the expense accounts of your salesmen were increasing, without a corresponding increase in the profits you were able to make on the material they were selling? It is understood that you have every confidence in their individual integrity and believe them when they state that the "high cost of living" has been extended to the legitimate expenses that they are compelled to meet in the way of hotel and livery bills, entertaining customers and the like. If the salaries you paid them were as high as you could afford and as low as they were willing to work for, what would you do to meet the growing deficit in your profits caused by the increasing amount of "traveling expenses?"

Send in your answer to Problem No. 10 so it will reach us before May 30. Address your letter to Prize Problem Contest Editor, "Brick & Clay Record," Chicago.

U. S. Government Interested in Road Maintenance.

The first practical experiment in government maintenance of interstate highways, is being undertaken on the stretch of road from Washington, D. C., to Atlanta, Ga., and will be well under way before the assembling of the American Road Congress at Atlanta November 9, according to an announcement made by the American Highway Association.

Every state in the Union and especially all the farmers and automobilists are awaiting the outcome of the experiment with keen interest in order to determine whether the government can, in this manner, aid in making road improvement work in all states homogeneous.

The American Highway Association, which originated the government's experiment, has already taken steps, in conjunction with the American Bar Association, to make the road laws of the different states more uniform, and the practical experiment on the road from Washington to Atlanta is designed to make the roads themselves more uniform and bring about continuity in improvement and maintenance.

Three automobiles, purchased by the American Highway Association, have been turned over to the engineers assigned to the Washington-Atlanta highway, and are now covering the entire stretch of mileage. The American Highway Association, which, with the American Automobile Association, holds its annual convention under the general title of the American Road Congress, is now confident that the experiment in maintenance will bear full fruit before the date of the assembly at Atlanta.

Pottery of a Vanished People.

Beneath the soil of the South American republic of Colombia there have just been brought to light some remarkable buried treasures in the line of curious animal-shaped pottery, each incised and made of black clay. These specimens are perhaps the only vestiges left of the vanished empire of the Chilbehas, which flourished in this region in pre-Spanish times.

The Semi-Monthly Trade Review

By comparing the bank clearings of the country for April and the first quarter of 1914 with the value of new building plans filed in the same period, some very definite conclusions may be drawn regarding the current ailment of the burned clay industry.

April bank clearings for the country aggregated $14,766,508,543, the third largest sum recorded during the last sixteen months, and an increase of 4.6 per cent over March. All of this gain was derived from New York city, which has been accredited with being the laggard in financial recovery. New building plans filed in the leading cities during the same period total $70,579,250, a decrease of 17.5 per cent from the total for the same number of cities reporting in March. New York shows a decrease of 9 per cent from March, Chicago shows a decrease of 23.2 per cent,—practically all the drops occurring in the last half,—Milwaukee, a drop of 20.5 per cent, Philadelphia a falling off of 16.6 per cent, San Francisco a negative difference of 48.2 per cent and Los Angeles a decline of 62 per cent. Albany, N. Y., reports a gain of 140 per cent, Cleveland, 28 per cent, Minneapolis, 34 per cent, Pittsburgh, 9.4 per cent, St. Louis, 17 per cent, St. Paul, 30 per cent and Seattle, 46 per cent.

For the quarter just closed, bank clearings totalled $57,668,460,959 as against $57,715,432,311 for the same period last year and $42,095,000,000 in the first quarter of 1912. Building plan filings for the quarter just closed showed a total of $70,579,250 as against $85,157,863 in 1913, or a decrease of 17.5 per cent.

It is evident, judging from these comparisons,—first, that while trade was irregular, there has been only a comparatively moderate shrinkage in money exchange, while just the opposite has been true with reference to new building plan filings, and,—second, that some other influence beside money stringency has been at the bottom of the sluggish building movement.

The conclusion to be derived from the first quarter totals at hand seems to eliminate money as the basic element in the cause of the slackness of the season in favor of over-construction, and, in some sections, labor disturbances. Chicago and the Rocky Mountain districts are conspicuous examples of the latter, while Manhattan and the Bronx boroughs of New York, Philadelphia, Milwaukee, San Francisco and Los Angeles are conspicuous examples of former large building centers which are at present undergoing absorption of buildings, either recently erected and partly tenanted, or older buildings from which tenants have moved, making large rentable space non-productive.

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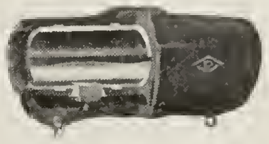
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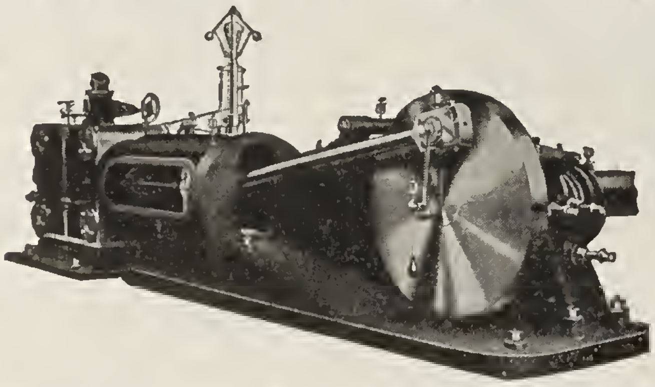

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But the statistics go farther than that. They indicate an economic reason for this falling off in construction, and an echo of the heralding rumble of revolutionary building construction spread over the country from Chicago early this month, where the meeting of the National Fire Prevention Association was held. This association is closely allied with the National Board of Fire Underwriters. Its consulting engineer, Ira H. Woolson, was the chairman of a special committee of experts who for a year have been preparing a standard of building construction, which will eliminate the use of the word "Fireproof" as a descriptive term applying to safe construction and substitute for it the word "Fire Resistive." Furthermore, all wood will be eliminated from such buildings save only in table tops in offices or workrooms in buildings enjoying this classification.

While there is nothing in the approval of these recommendations by the National Fire Prevention Association that will compel cities to change their standards of building construction, the fact that the proposed changes has the endorsement of the National Board of Fire Underwriters, a body that controls the insurance ratings on buildings and on building construction, will result ultimately in complete changes of standards in the formal building codes in all cities.

For this reason fire insurance companies are opposing the tendency of some states to make their own fire insurance rates, because, as the committee in its recommendations stated, a degree of safety is felt by persons living in so-called fireproof houses that is not always fully warranted.

Building investors have, for a long time, known that a new standard of "fireproof" construction had to be made, because of the inroads of inferior construction and materials that had gone into buildings that, while technically "fireproof," were not, in reality, fire resistive. Many builders do not feel like going ahead with plans for a building that almost as soon as erected, must be remodeled to conform to new standards, and so the speculative element in the building construction industry has been slow in putting up buildings that more than meet present building code standards, because of the extra first cost involved. Here, then, is one reason why building construction throughout the country shows a decline while bank clearings hold fairly steady.

Any program looking toward more perfect fire resistive construction should have the full endorsement of brick manufacturers and distributors everywhere. It is a cue to them to boost the game of the National Fire Prevention Association, because the leading fire prevention engineers of the country from Edward F. Croker, former Chief of the New York Fire Department, right along the line, hold that brick is the most efficient fire resistive material that can be used in building construction.

As for the nation-wide movement of clay products during the month, so far, the demand in the New York market has shown an increase of about a million a week over the volume required in the early weeks of April. Stocks in the Hudson river sheds are being gradually lowered, but there is still a large over-supply and manufacturers are not very aggressive about getting their yards rolled and machines ready for the 1914 season. Brooklyn and Queens boroughs alone show gains in brick riding. In Chicago the brick-makers' strike is directly responsible for the falling off in new building plans filed. The middle western cities are taking large quantities of both common and face brick, but the southern manufacturers are complaining of slow business and still slower collections.

New England brick makers are reporting more active business conditions, but margins are meagre, with competition keen. Northwestern communities are taking clay products in good volume, as shown by the big gain in plan filings made by Seattle, Spokane, and smaller places. The only exception to the general rule of building activity in the northwest is the city of Tacoma, which showed up on May first with a decrease of 34.3 per cent from March.

Face brick interests in the east are reporting a slightly better inquiry, but prices are not as satisfactory as distributors would like to have them. In New York state the Kittanning Face Brick Company was incorporated for $300,000 to deal in and manufacture fire brick, fire clay, face brick, tile, terra cotta, etc. The company contemplates the erection of a plant at East Mosgrove, Pa.

Eastern common brick prices in the New York market are improving. Early in May they ran to $5.75 high and as low as $5. At present some of the best brick is selling at $7, although the ruling price level is from $5.50 to $6.75 wholesale. Newark, N. J., yard prices run at about $7.25 to $7.50 basic. From 25 to 50 cents extra is being charged for common brick in the northwest, where the demand is keen, and Connecticut brick prices are from a shilling to a quarter higher a thousand, wholesale, for fine grades of brick.

In the opinion of men whose judgment is ripe on such matters, the future of the building situation depends largely upon the general steadying of trade. The crops promise to be large and the decision of the Interstate Commerce Commission on the proposed freight rate increase, which is expected to be handed down around the first of the month, are the two paramount factors that will make or mar the 1914 building season. More stability in business will permit of business expansion, which will help speedily to assimilate the vacant space not available in many parts of the country, and will thus create a demand for new, if not better, building construction.

In the Wake of the News

Being Brief Mention of the Host of Interesting Things That Have Happened During the Past Fortnight

ALBERTA

Four million Redcliff brick are to be used in the construction of the trunk sewers of the $250,000 sewer system which will be built this year. The sewer pipe used will also be made in this vicinity.

The mining crew of the Redcliff Brick & Coal Company is directing its energies to the removal of the coal in the proximity of a small fire that is smouldering there. It is in no way endangering the mine.

The Redcliff Pressed Brick Company is considering the sinking of a shaft 200 feet into the shale beds it is now working, in the hope that other varieties of shale may be found, that will be suitable for a lighter brick.

The brick interests of Redcliff, Alta., are considering a selling organization to represent the three clay products industries operating there. It is desired to obviate the

"Clinton" Brick and Mortar Colors

Unusually strong in pigment. Positively warranted not to wash out, "streak," or fade. Recognized everywhere as the standard of Brick and Mortar Colors.

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Insist on the genuine "Clinton" colors made only by
Clinton Metallic Paint Co., Clinton, N. Y.
P. O. BOX 38

Realization of Patent

Purchasers desired for the new process for the production of fired artificial stone from waste material, under domestic and foreign patents. The necessary machines for the purpose are nearing completion. Patent for sale and licenses to be allowed. "Well begun is half done."
Only serious inquirers are requested to communicate with the address, B. C. 1729, care of the Business Department of the Tonindustrie-Zeitung, Berlin, N. W. 21, Germany.

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We Manufacture Everything Needed For Dryer Installations.

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As required for BRICK MAKERS USES.

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Do you experience any trouble in making, drying or burning your ware? If so, it will pay you to communicate with

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WE HAVE SCHOLARSHIPS IN OVER A HUNDRED HIGH-GRADE COLLEGES—INCLUDING MEDICINE, MUSIC, BUSINESS, LITERARY, ETC. These we took to settle a business deal, and will sell them at a liberal discount, and will take deferred payments from worthy applicants. Or will trade for any article that we can use.

We have many furnishing board, as well as tuition.

When writing state age, name of school you would like to attend, location preferred. We cannot place pupils in a school once attended or that pupils have had negotiations with.

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GOOD BUSINESS

445 Plymouth Court CHICAGO

necessity of maintaining separate agencies and salesmen in the larger cities of Western Canada.

All the Redcliff brick plants report an abundance of orders for the building season, but the contractors are slow in requesting delivery, with the idea, perhaps, of postponing payment to as distant a date as possible. The building season in Alberta is opening late, but promises to be better than 1913.

The Redcliff Brick & Coal Company is preparing to make a new face brick in light colors as soon as the railroad is completed to the clay beds of Southern Saskatchewan. An advertising campaign to stimulate the demand for the new varieties of brick and to extend the use of brick is likely to be undertaken.

CALIFORNIA

The Sacramento Clay Products Company, of Sacramento, Cal., is making extensive improvements at its plant in North Sacramento. A $6,000 brick making machine has already been ordered and is due to arrive at the plant within a few days.

The Shell Royal Dutch Syndicate has purchased property near Martinez, Cal., and will soon erect at a cost of $5,000,000 a gravity oil refining plant. This will require an immense amount of common and fire brick, and brick manufacturers of San Francisco are turning their attention to the prospective contracts.

The Steiger Terra Cotta & Pottery Works, of San Francisco, has filed a complaint with the California State Railroad Commission against the Southern Pacific Railroad Company asking for a decision that the railroad company should rebate to the Steiger Terra Cotta & Pottery Works the sum of $10,645.27 on account of illegal overcharges on 666 carloads of clay received by the applicant from Ione, Clarksonia, Yaru and other California points during the past three years.

The Pacific Coast Pottery & Terra Cotta Company, of San Jose, Cal., has filed a complaint with the California State Railroad Commission against the Southern Pacific Railroad Company, asking for lower freight rates between San Jose, Cal., and Ione, Clarksonia, Yaru, Carbondale, Lincoln, Clay and Valley Springs, Cal., on clay shipped in carload lots. The commission is asked to find that 70c is a reasonable charge, as against the present rate of $1.50 per ton.

The California Brick Company, with its works in Decoto, Cal., is trying at present to get the paving contract for Third street. Mr. McKenzie, of that company, objects strongly to the specification of the street committee, stating the fact that 20 per cent rattler test is about the highest ever required in the four cities, Spokane, Chicago, Boston and San Francisco, known as having the heaviest street traffic in the whole country. Mr. McKenzie says that his company is able to furnish the material at a saving of $13,000 to the city, but if the board of supervisors should persist in its requirements, the only western concern able to comply with them is the Denny-Renton Coal & Clay Co., in Seattle, Wash. Mr. McKenzie believes that San Francisco's future pavements will be layed in vitrified brick, because asphalt has proved to be a failure, being unable to withstand the tear and wear of the traffic, and because basalt is too expensive. Now, as he sees it, vitrified brick is cheaper than basalt and better than either basalt or asphalt. As a matter of fact, however, the whole problem rests only with the intrinsic merits of the material, since everybody who has ever done any business with the San Francisco city hall, knows well that a good price will surely be paid for good stuff.

ILLINOIS

The capitalization of the Alton (Ill.) Brick Company has been increased from $250,000 to $3,000,000.

INDIANA

The Chicago Fire Brick Company purchased the Brazil, Ind., plant of the Chicago Sewer Pipe Company, and will close the office which the last named company has maintained in Chicago. It is understood that no change will be made in the character of the product of the newly purchased plant, which is, at the present time, sewer pipe, flue lining, wall coping and similar material. The price is said to have been $35,000.

The New Albany (Ind.) Automobile Club has gone on record in favor of the use of vitrified brick in road construction, instead of macadam or other material, on the ground that the cost of maintenance is practically negligible as compared with any other type of highway, more than equalizing the slightly greater initial cost. Contracts have been let recently for macadam road construction around the city at $8,000 a mile, while brick can be laid at $9,000 to $10,000 a mile, and the maintenance cost for the latter type of road is stated to be about $2 a mile, as compared to $30 to $100 a mile for macadamized roads.

KANSAS

The Bloomdale (Kas.) Brick & Tile Co. is improving its plant by the erection of another large dry-shed.

KENTUCKY

The Louisville (Ky.) Fire Brick Works has increased its capitalization from $150,000 to $200,000.

O. H. Bolz, of Irvine, Ky., has purchased equipment for the manufacture of 10,000 brick a day, and will also turn out sidewalk tile, chimney caps, coping, and other clay products, as well as concrete blocks.

The Louisville (Ky.) Brick Company's plant was opened after the Winter let-up only a few days ago, and is now making brick at the rate of 40,000 a day, an encouraging volume of orders warranting this production.

The Louisville (Ky.) Hospital Commission, which had charge of the erection of the city's million-dollar hospital, and the city itself, have been sued by A. Bentley & Sons Co., the general contractor, for damages in the sum of $5,000, alleged to have resulted from the failure of the commission to carry out its part of the contract relative to the delivery of brick used in the building.

A plea for home industry was filed recently with the Louisville (Ky.) Board of Education by local contractors, in connection with the several school buildings which will be constructed out of the proceeds of the million-dollar bond issue which was sold recently. The contractors petitioned the board to let the several contracts in detail, and to prefer home bidders, other things being equal. Several of the largest jobs handled in Louisville during the past two or three years went to outside contractors, and the local members of the building trades want to prevent this happening again, if possible.

The Newport Pressed Brick & Stone Company, of Newport, Ky., is getting under way for the first time since last Fall, when it installed a new stiff-mud machine in its rough brick plant. The company is now preparing to turn out about 35,000 of these brick a day, according to Frank J. Derrick, the president, and it will also make such amount of common brick as there is a demand for. Besides these lines, it is expected that a quantity of hollow brick will be produced, as well as a new variety of enameled brick, which is made under a process by which the coloring is applied after the brick is burned.

Marion means the worlds largest manufacturer of excavating machinery—a 75-acre plant—30-years' experience.

Revolving in complete circles so that the clay or shale can be dug and dumped at any angle.

Shovels that have come to mean service—*Constant Service*—to all who have used them. MARION Shovels are built to do *your* work quicker, better and *Cheaper.*

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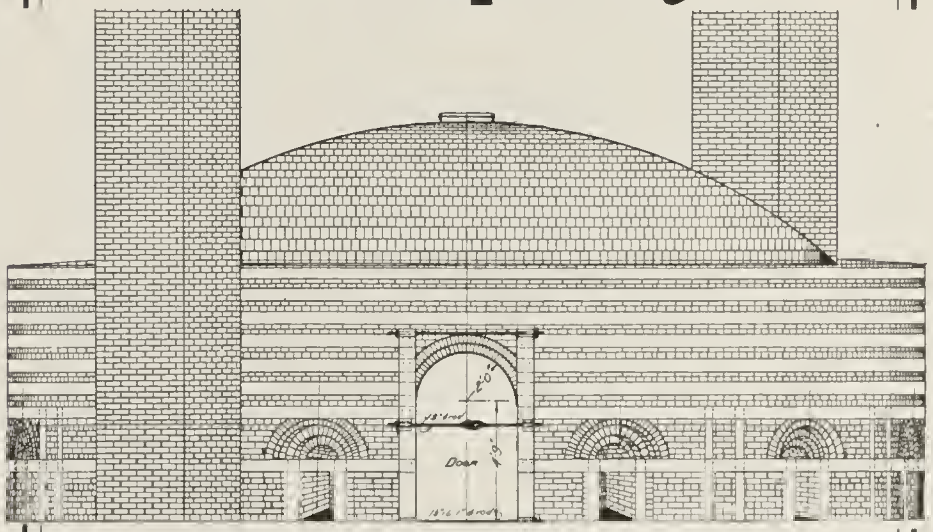
The Marion Steam Shovel Co.
(ESTABLISHED 1884)
Station A Marion, Ohio

Claude Smith Company



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Manufacturers of the famous
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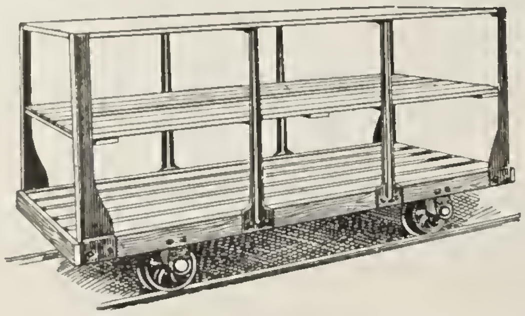

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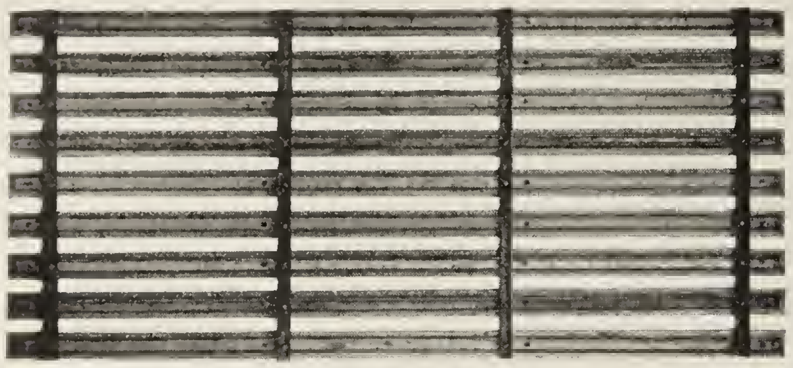

Also grey iron castings for all kinds of brick and tile machinery.

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To Prevent Scum Appearing on Your Brick, Terra Cotta, Etc., Use

R. H. Precipitated Carbonate of Barytes

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Other High Grade Chemicals For Clay Industries

The Roessler & Hasslacher Chemical Company
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General Manager A. B. Hillenbrand, Jr., of the East End Brick Company, of Louisville, Ky., reports that the plant has been operating actively since its Spring resumption, several weeks ago, a fair volume of business being handled. Operations are proceeding at the rate of 35,000 to 38,000 brick a day, which is close to capacity, indicating a satisfactory degree of activity for the season. The company recently arranged to continue work at its present location until January 1, 1915, at which time it may be that other arrangements will be made.

The increasing business of the Louisville Fire Brick Works, of Louisville, Ky., and its optimistic view of the future, is indicated by the fact that it recently filed amended articles of incorporation increasing its capital stock from $150,000 to $250,000. The company's plant has been operating for some time at about its usual capacity, and a fair volume of orders has been handled. Salesmanager J. H. Bell was in Cleveland, Ohio, recently, negotiating for a large order in sight there, in competition with manufacturers all through Ohio and other nearby territory. The company is confident of getting at least a part of the order, however, as it can ship from its plant at Grahn, Ky., at a price which enables it to compete with plants on the other side of the Ohio river advantageously.

LOUISIANA

G. G. Barham, care Shreveport Hotel, Shreveport, La., is in the market for brickmaking machinery.

MICHIGAN

A new pottery which the Business Men's Association of Mt. Clemens have succeeded in locating in their home city will cost $40,000. The structure will be one story high and in dimensions will be 160x670 feet. The building will face the Grand Trunk with a siding on Church street extension. Architect Van Damme is drawing plans for the building.

Prominent among the industries of Ionia, Mich., is the Ionia Pottery Company. This company was organized years ago by the Amphlettes and operated on a small scale until the stock finally fell into the hands of the present owners. The pottery plant is one of the best equipped in the country. The old buildings have the last two years been enlarged and rearranged, and $20,000 expended in adding all the new and modern machinery that is needed to keep pace with the times. The company ships more than 200 carloads of flower pots a year, an enormous increase, compared with the business the concern used to do in the early days. The plant runs night and day and employs 50 men, maintaining an annual payroll of $25,000. In addition to the pottery manufacture the company also makes wire baskets for florists' decorations, a feature of the business that is growing rapidly. The concern is highly prosperous and is officered by men who have been in the business for years. At the annual meeting the old officers were re-elected as follows: President, Fred Cutler, Jr.; vice-president, Royal A. Hawley; secretary and treasurer, Harvey E. Kidder; superintendent, Henry Witzel.

The industries of Michigan that are based upon fabrication of the earths and clays of the state are quite varied. They include the making of common brick, a state wide industry, productive in 1913 of nearly 400,000,000 common brick, of a value of over $3,000,000; the production of drain tile, which had a value of nearly $500,000 last year; pottery, of the value of $250,000, divided between domestic and florists' flower pots and ornamental and highly finished tile. The clay-working industry in Michigan, outside the cement trade, represents nearly $5,000,000 of finished product per annum, with this figure ever increasing. Practically nó fireproofing is made in Michigan from the basic clays, and the amount of decorative and art pottery made is quite limited, but one pottery of consequence for product of this class existing in the state, although a number of china firing kilns are in existence. The brick business is carried on at 42 yards in Michigan, employing from 3 to 250 employes apiece, and, united, using the services of 1,500 men. The brick and tile yards are 19 more, employing 400 men. The general tile industry for roofing, fireproofing and flooring purposes are eight in number and use up the work of 150 men. Sewer pipe and underground conduits, made from artificial clay, use up the labor of 250 men. All told the clay workers of Michigan number 3,500 and earn $1,750,000 a year of wages, out of the $4,000,000 of product they make. Three plants are engaged in making paving brick, one at Bay City, one at Saginaw, and a minor one near Owosso. The first two have produced a considerable quantity of commercial paving brick, which are held in high esteem by engineers.

MISSOURI

John Gundelach, of Union, Mo., is in charge of the I. G. Moutier plant at that place. Several improvements have been made to the property and the plant began operations May 15, with enough orders ahead to keep it running for several months.

MONTANA

The United States Reclamation Service at Huntley, Mont., is receiving bids for 34,000 feet of tile drains for use on the Huntley irrigation and drainage project.

NEW JERSEY

E. E. Denniston, of Elizabeth, N. J., and E. T. Hand, of Plainfield, N. J., are the incorporators of the Berkeley Brick Company, of New Providence, N. J. The new company is capitalized at $100,000.

OHIO

There is talk of erecting a tile plant at Lisbon, Ohio. The Board of Trade of Salem, Ohio, now has the matter in hand.

The Adams Brick Co., of Cincinnati, Ohio, recently began operations at its new plant on the C., C. & L. Railroad, which was erected following the dismantling of the company's old plant. The company will turn out from 45,000 to 50,000 common brick a day.

The general offices of the Standard Brick Company, at Bellaire, Ohio, have been removed to the Odd Fellows Building, in that city. On account of increasing business, more office room was required.

The Supreme Court of Ohio has just handed down a decision which upholds the State Workmen's Compensation Act, which was passed by the last session of the State Legislature. Every clay working plant owner within the state is vitally concerned in this decision.

Paving brick is to be made a part of the production of the Coshocton Brick Company, of Coshocton, Ohio, and with that end in view a lot of additional machinery is to be installed immediately. The demand for paving brick and blocks in that locality is growing, so the concern decided to "get into the game."

The Defiance Clay Products Company is the name under which the brick and tile manufacturing concern, formerly known as the Defiance Brick & Tile Company, will

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Well Burned Brick

Makes a slow-wearing, dustless pavement, if properly laid. The Base, Filler and Grout must be made of the best grade of cement.

And that is LEHIGH PORTLAND CEMENT

Not only high in strength, but dependably uniform. Set the proportions for the mixtures, adhere to those proportions and the job, so far as the cement is concerned, will be uniform throughout. The same strength, the same color, the same fineness, the same dependability.

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UNIFORM BURNS FOLLOW
EVENLY MIXED CLAY

Economical
Saves Labor and lowers percentage of off-color and second quality ware.

Efficient
Works just as hard day after payday as day before. Takes no holidays.

THE RUST
Clay Feeder
Insures an Even Mix of Clay and Makes a Right Start toward a Perfect Product.

MARION
MACHINE, FOUNDRY & SUPPLY COMPANY
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CLAY HAULAGE
Reduce costs of transportation by using a
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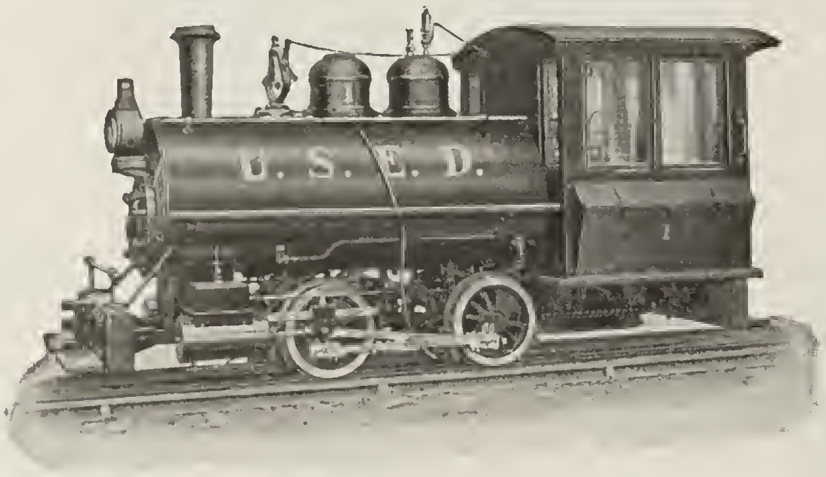

Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.
Cheaper Than Horse Transportation
and will reduce costs of delivering your material to your plant, thus increasing profits.
All About Modern Industrial Railways
Write us for particulars
Davenport Locomotive Works
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Pittsburgh: 405 Oliver Bldg.
Seattle: 617 Western Ave.
Montreal: 286 St. James St.
St. Paul: 1308 Pioneer-Press Bldg.
Winnipeg: 45 Canadian Life Block
New York City: 362—50 Church St.
Vancouver: 175 Cordova St.

hereafter be known. The company has practically rebuilt its property, and the plant is now under the general management of Clen Small.

The Clermont Brick Company, of Batavia, Ohio, recently increased the capacity of its plant in order to meet the demand for its several products. It is now manufacturing a shale hollow brick which is meeting with considerable favor among builders. It formerly made at this plant a dry-pressed red stock brick, which has been supplanted by other lines.

Extra teams have been pressed into service at the plant of the Cincinnati (Ohio) Sewer Pipe Company, according to William Nickel, secretary and treasurer of the company, the Spring rush having attained its normal volume, apparently. Both local and outside work is good, Mr. Nickel states, with prospects for a continuance of activity all through the Spring and Summer.

The Hecla Land Development Company, whose first purpose is the development of the extensive holdings of the Hecla Iron & Steel Company of Lawrence County, Ohio, has been incorporated. The company holds 6,000 acres and mineral rights on 7,000. Brick plants, potteries, and other industrial projects will follow. Frank Enslow of Huntington, W. Va., and A. B. Brods of Ironton, Ohio, are the organizers of the company.

The Ludowici-Celadon Company has begun construction on the new press room building that is to be added to the New Lexington, Ohio, plant. Additional machinery will be installed when the building is completed. The Ludowici Company has now only two plants in operation, these being at New Lexington, Ohio, and at Coffeyville, Kans. The plant at Ludowici, Ga., has been shut down and the one at Chicago Heights, Ill., disabled by fire.

The Rookwood Pottery, of Cincinnati, Ohio, is completing work on a group of figures representing the seasons, which will go with a fountain which the plant is making for the Baer-Kaufman department store, in Pittsburg. The modeling is by a local sculptor of national reputation, and the fountain, when completed and installed, will undoubtedly be one of the finest pieces of clay work in the country. The finish is green mat.

The Pursell-Grand Company, handling the lines of several brick and terra-cotta manufacturers in and around Cincinnati, Ohio, is completing one of the largest display rooms for these goods in that city. Its goods will be shown in a space 22x51 ft., the brick being laid in mortar and embellished with terra-cotta trimmings, just as these products would appear in a building, giving an excellent idea of the actual appearance of any line of brick or terra-cotta desired to be shown.

The Cincinnati (Ohio) Brick Company is preparing to open up its plant for active operations after the Winter shut-down, the resumption of activity having been postponed considerably by reason of high water in the valley near the river, where the company's plant is located. Mr. Powell reports that water in the pits made it impossible to start up sooner, but, fortunately, the company had an ample reserve, amounting to about 700,000 brick, and was able to make deliveries on a number of large orders without delay.

With Guernsey County, Ohio, falling in line for the use of brick as a paving material for the surfacing of the National Pike running through that county, there will only be about 28 miles of unimproved roadway on this pike between the Ohio River and Columbus, Ohio, by January 1st, 1915. Arrangements have been completed by State Highway Commissioner Marker whereby Guernsey County will make the improvement this year. The State will pay $150,000 of the total cost and the County the remainder.

The demand for the garden pottery and high-grade flooring tile manufactured by the Wheatley Pottery, of Cincinnati, Ohio, is considerably off, according to the management, although there is no perceptible cause for it, aside from slow business in general. The company's business is estimated at about 70 per cent of normal for the season.

The Belden Brick Company, of Canton, Ohio, has issued a very handsome catalog of the brick made at the four plants it owns, giving color plates that are splendid specimens of the printer's art as well as being very close to the color of the brick—much nearer than the average color reproduction. The cover bears the imprint of a brick, in which the trade-mark "Belden" is stamped.

The Ohio State Board of Administration has asked Warden Thomas, of the Columbus, Ohio, penitentiary, to have thirty prisoners made ready at once to be sent to Junction City, O., to prepare for the operation of the brick plant that the State has leased there. By July 1, it is expected that 100 prisoners will be required to operate the plant. Ohio pays $4,000 a year for the use of the plant. By the use of convict labor in this way and in actual building operations, the State Board estimates that the State can save a million dollars in the building of the new penitentiary.

Cleveland and Fostoria parties have been investigating the Frank Halbeisen brick and tile plant at Vickery, Ohio, and there is a possibility the plant will be acquired by purchase and operated by a company recently incorporated and operating a plant at Orrville, Ohio, which was promoted by Mr. Halbeisen and Mr. Gessna, the latter of Fostoria. The clay at the Orrville plant has been found to be well adapted for the manufacture of drain tile and brick and should the new company take over the Vickery plant the two plants will be operated under one head and the output at Vickery greatly enlarged and the company incorporated with a capital stock of $15,000.

The Cincinanti (Ohio) Clay Products & Supply Co. is one of the numerous manufacturing concerns in the Queen City which have agreed to take space, to the total amount of more than 60,000 sq. ft., in the proposed permanent manufacturers' exhibit building to be erected just south of the Union Central Life Insurance Company's 34-story skyscraper at Fourth and Vine streets. The plan is to collect in this building, which will be put up during the Summer, representative exhibits from leading Cincinnati manufacturers, and the clay field will be well represented, as other concerns besides that mentioned have indicated their intention of participating.

William Mitchell, secretary of the Mitchell Brick Company, of Cincinnati, Ohio, and active manager of the company's plant and business, reports that he has just been able to get the plant back into commission after experiencing considerable trouble with high water. In common with other plants located in the lower river valley, the company found its pits impossible to work on account of the water, although this is as far as the trouble went, there being no comparison with the floods of a year ago. It was sufficient, however, to prevent operations, and in the case of the Mitchell Company this was especially annoying, as no reserve stock was available. The company is now working at full tilt, however, turning out about 60,000 brick a day.

After weeks of conferences, propositions and counter propositions, terms have been made by the four brick

Cotton Duck Belting

It is in hard service—unusual conditions—that Gandy Belting best proves its durability and worth.

One customer writes:
"We have used one of your belts for three years conveying hot sand ranging from 250 deg. to 325 deg. Fahr. and can cheerfully recommend same to anyone for this work."

The Gandy Belt is as successful for conveying purposes as for driving and elevating. We have records of Gandy Belts used for eighteen and twenty years as main drives that are still in successful use.

What Gandy has done for others it will do for you.

We will gladly send you full information, samples, and name of nearest distributor upon application.

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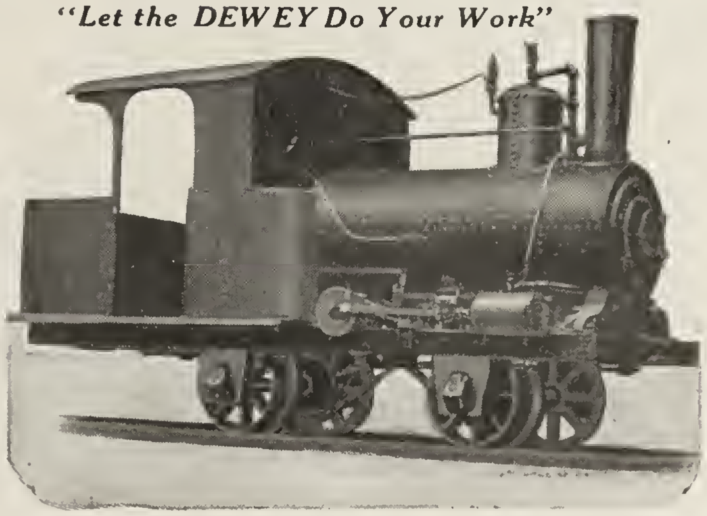
$1200 Buys a Dewey

"Let the DEWEY Do Your Work"



And no matter how much more you might pay, you wouldn't get anything better—dollar for dollar. The Dewey is far ahead of any other locomotive on the market. Let us prove it—a card will bring the truth.

DEWEY BROS., Goldsboro, N. C.

The "Martin" **BRICK MACHINERY**

Modern **YARD SUPPLIES**

Soft-Mud or Stiff-Mud Processes

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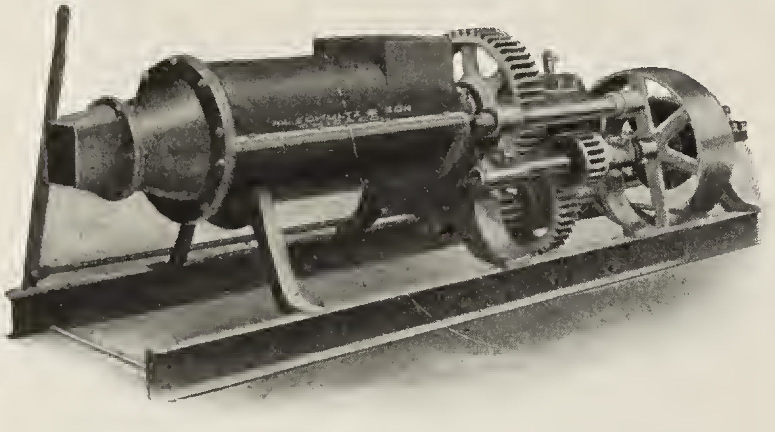
For Brick, Tile and Terra Cotta Plants

We make a specialty of designing and furnishing complete machinery equipment for all kinds of clay-working plants, including expert engineering service in supervising erection and installation.



Double Pug Mill equipment, especially designed for the perfect preparation of material in the manufacture of terra cotta.

SCHULTZ HEAVY DUTY FRICTION CLUTCH suitable for all purposes. If you are having clutch trouble, write to us and we will show you the way out of your difficulties.

Complete brick plants furnished promptly, including auger machines, pug mills, clay cars and granulator shafts.

Cutting and cut steel gears always in stock for brick machines, also granulator knives.

Remember, we are brick works engineers and will be glad to advise you regarding any improvements or repairs which you contemplate.

A. L. SCHULTZ & SON, 1675 Elston Ave., Chicago

Telephone Monroe 1629

We also make a complete line of Power Transmission Appliances, Engines and Boilers,

manufacturing concerns operating in the Shawnee district of Ohio, and the clay miners. By the terms of the agreement wages are readjusted and the companies are given full power to hire and discharge without reference to the labor unions involved. It is a distinct victory for the manufacturers as they can operate practically open shops. Work at all four of the brick plants which have been idle since the first of the year was scheduled to start Monday April 20. The concerns affected were the Iron Clay Brick Company, the Claycraft Brick and Mining Company, Shawnee Flash Brick Company and the Straightsville Impervious Brick Company.

Brick men are interested in the appeal recently filed by the Jeffrey Manufacturing Company, of Columbus, Ohio, from the decision of the Ohio Supreme Court affirming a judgment against it obtained by an injured workman, under the provision of the Ohio workmen's Compensation act depriving employers not taking insurance under it of the benefit of the common law defenses of contributory negligence, the act of a fellow servant, and assumption of risk. The company alleges that this provision of the act is unconstitutional, and will carry the case through the Supreme Court of the United States on this ground. For the most part manufacturers have accepted the act, finding it entirely satisfactory, but all are none the less interested in knowing whether it is of binding force or not.

ONTARIO

The Excelsior Brick Company, with head office in Toronto, Ontario, Canada, which was incoporated in November, 1912, with nominal stock of $250,000, was ordered wound up Saturday, April 25, in Toronto, by order of Justice Middleton. Only $75,000 of the subscribed stock of $150,000 has been paid up. Osler Wade, of Toronto, is interim liquidator with a reference to the Master-in-ordinary.

Mr. Dowler and Mr. Gowanloch, of the Mount McKay Clay Products Company, of Port William, Ontario, stopped for a few days in Chicago, during the last week in April, being on a tour of inspection through the States. They were investigating driers and kilns, it being their intention to add a wire-cut outfit and new kilns to their present equipment. which is Berg dry-press.

OREGON

Citizens of Molala, Ore., have raised $25,000 to be used in the erection of a pottery plant at that place.

The North Plains Tile & Brick Company, of North Plains, Oregon, are considering the erection of a down draft kiln and want blue prints showing method of construction.

F. A. Lucas and B. M. Cook, of Eugene, Oregon, have leased the Eugene Brick Works, three miles west of that city, and will start up early in April. It is intended to put in a new tile machine and build another down-draft kiln.

A device which is practically unknown among floriculturists is the pot washer put on the market by the Fowler-Hotchkiss Company, of Portland, Oregon. This machine washes up to 1,000 pots an hour, at an expense of from one to two cents an hour. As a dirt mover, the device is to be commended, but it cannot make old pots new, nor diminish the demand for new pots. Since cleanliness is a selling virtue, florists with large establishments might install this machine with considerable profit.

PENNSYLVANIA

The Pennsylvania Clay Club will hold its May monthly meeting in parlors of the Fort Pitt Hotel the evening of May 21, at which time dinner will be served the membership. This is a social organization, and following the dinners, manufacturing troubles are discussed most freely.

In order to meet the demands of its trade, the Paxtonville Brick Company, at Milton, Pa., has increased its daily production from 30,000 to 40,000 per day.

The Altoona Brick Company of Altoona, Pa., has been incorporated for $16,000. The incorporators are C. W. Moore, Enos M. Jones, J. F. Meck and J. S. Seeds, of Altoona, Pa.

The Excelsior Brick Company of Rockwood, Pa., resumed operations April 14 after spending several weeks remodeling. The company expects to manufacture between 15,000 and 20,000 brick daily.

The Sharpsville (Pa.) borough council has taken bids for the paving of streets in that borough. Street Commissioner Clinton Billignis has received sample brick and paving blocks from nearly all the manufacturers in this locality.

Additional machinery is being installed in the plant of the Milton Brick Company, at Milton, Pa. Several additional buildings are being added to the plant, and by the end of June operations will be in full swing.

The new plant of the Kittanning Gray and Buff Brick Company, located at West Musgrove, Pa., is being rapidly completed. The new plant is to be modern in every respect. Operations will be started about August.

The Pennsylvania Clay Company, of Pittsburgh, was awarded the contract for the brick to be used in the construction of the Dunbar township road. The bid was $18.25 per thousand for the brick. About 230,000 will be required to build the road.

The Pearson Brick Company, a sales organization handling terra-cotta, face and enameled brick, fire brick and other refractories, has opened an office at Newcastle, Pa., which is regarded as one of the best in western Pennsylvania.

The Harbison-Walker Refractories Co., Mt. Union's (Pa.) largest brick plant, has received an order for 24 million brick, which, with other orders, will mean two years' employment for seven hundred men. This order aggregates in value about $1,500,000.

R. E. Keedy has purchased the plant of the William P. Kelley Brick Works, situated at Windber, Pa., for $6,000. The sale was made by William H. Sunshine, acting as a trustee for a number of creditors of the brick company. After repairs and additions the plant will be operated by Mr. Keedy.

Albert E. Reed, secretary-treasurer of the Vanport Brick Company, with offices in the Farmers' Bank Building, Pittsburgh, Pa., and works at Vanport, Pa., died recently. He was born Nov. 5, 1879, at Tunbridge Wells, Kent, England, and came to this country in 1892. He was very popular in the trade, and was interested in the advancement of building brick.

An exhibition in the modeling of vases and dishes was given by Miss Farron, of the Margaret Morrison School, before the Children's Art Hour in Carnegie Institute, at Pittsburgh. In order that the demonstration might illustrate all processes of pottery making, a potter's wheel was loaned by the School of Education, of the University of Pittsburgh.

The capacity of the plant of the Carbon (Pa.) Brick Company has been increased by the installing of a powerful steam shovel in its clay pits, and the introduction of several improvements in its manufacturing department, all of which has caused the company to maintain a daily production per diem so far this season of between 30,000 and 35,000 brick. The concern, whose general offices are in the Henry W. Oliver building in Pittsburgh, are heav-

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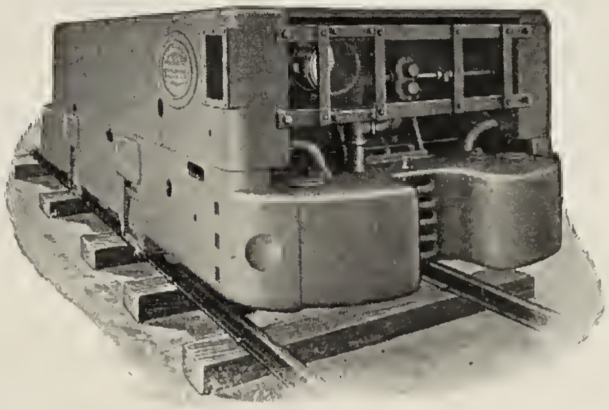

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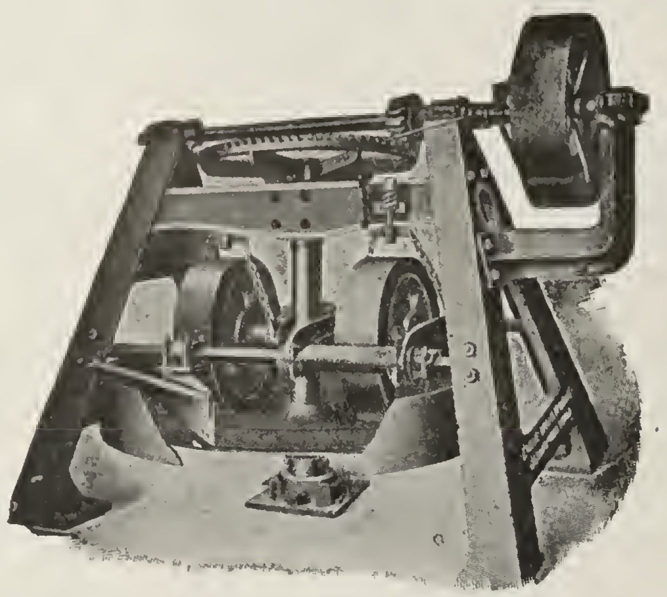

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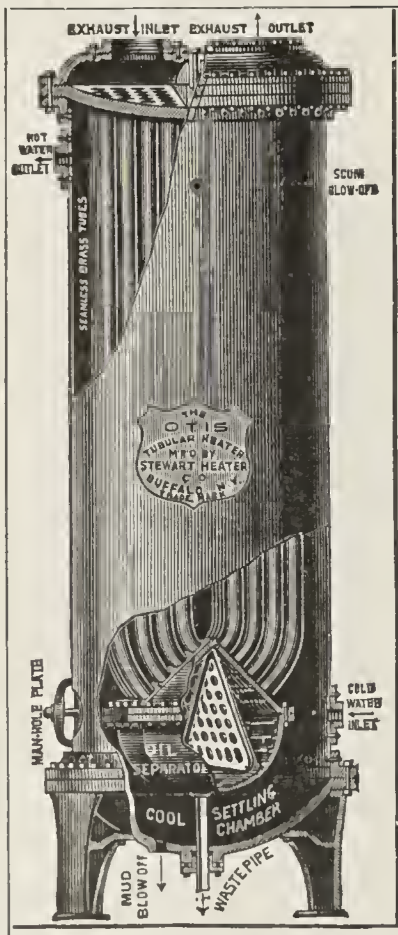

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To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust,* so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator.*

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Catalogue and Prices at Your Service

The Stewart Heater Company,
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ily interested in the manufacturing of a rough face brick, which they have named "Gobbles." A scratched face brick is also being produced. Business with this company in the Chicago district is admitted to be good, entrance into that district having been made for the first time early this year. The only common brick the company is making is "culls."

A petition signed by concerns located along the Allegheny river with aggregate capital investments of $500,000,000, has been sent to the secretary of war and the river and harbors committee at Washington, D. C., urging that the deepening of the river be started at once. Among the manufacturing concerns that signed was the Harbison-Walker Refractories Company, of Pittsburgh.

Prices of paving brick in the western Pennsylvania territory are on a range of $17@$19 per thousand f. o. b. cars. The United Fire Brick Company recently sold an order for over 800,000 on a basis of $17.60 per thousand, while the Pennsylvania Clay Company, of Pittsburgh, has booked an order for 230,000 for delivery in Fayette county on a basis of $18.25 per thousand. The United company has its general offices at Uniontown, Pa.

The State of Pennsylvania, through the office of E. M. Bigelow, at Harrisburg, Pa., is now advertising for bids for construction of many miles of paved highway in various parts of the State. In a Pittsburgh, Pa., newspaper recently one and one half columns of road improvement advertising appeared, there being over a dozen big jobs advertised. More are to follow, and as a result the paving brick block and brick business is "in" for one of its biggest years.

The section of the State highway extending 6,700 feet in East Taylor township, Cambria county, Pa., will be constructed of brick, according to a communication from the State highway commissioners who are taking up the consideration of the construction of the road. The decision to use brick was brought about by the township supervisors after the commissioners had decided to use macadam. The aggregate cost of the work will be $33,400. The bottom course will be five inch concrete, while the four inch brick will be laid on a one and one-half inch sand cushion.

Floods in the Ohio Valley, with specific recommendations for their prevention in the future, are considered in a report which was prepared by a special board of engineers appointed by Secretary of War Garrison. The report is now completed and will shortly be issued. President Wilson is expected to base his recommendations to Congress on the result of the findings of the engineers. It is highly probable that the recommendations will be made before the adjournment of the present session. Col. Francis R. Shunt is chairman of the special board. His recommendations, it is understood, will deal with every phase of the flood situation in Ohio and Mississippi valleys. The report will be amplified by tables showing the loss of life and property in the flood of last year, and will also show that the damage to property in the past few years would more than have met the cost of preventive work.

The new Pennsylvania labor law will affect clay product manufacturers, as its provisions regulate the number of hours which persons such as are usually employed in plants of this kind shall work. A section of the law which is of interest follows:

Hours of Labor—Boys under 16 may not be employed in any establishment more than 10 hours a day except to make a shorter work day (not holiday) for one day in the week, and not more than 58 hours in any week, nor may they be employed between 9 p. m. and 6 a. m., except in continuous industries, in which case employment is not to exceed 9 hours during any 24 hours.

Females may not be employed more than 6 days of 54 hours in any one week. with the following exceptions:

Overtime for Holidays—In case of legal holidays, these hours may be exceeded during three of the five remaining days of the same week by not more than two hours overtime in any one day, so long as the weekly total of 54 hours is not exceeded.

Overtime for Stoppage of Machinery—Overtime may be allowed for time lost in excess of 30 minutes, during the same week, in consequence of alterations, repairs or accidents to machinery or the plant, provided written report is sent to the Commissioner of Labor and Industry, but no such overtime shall exceed two hours in any one day, nor shall the total hours of employment in any case exceed 54 hours in any week.

Females Under Twenty-one—Must not be employed between 9 p. m. and 6 a. m. For the enforcement of this provision the Commissioner of Labor and Industry, or his deputies, may demand proof that a female employed is 21 years of age or over.

Females may not be employed in any manufacturing establishment between 10 p. m. and 6 a. m., except as managers, superintendents, clerks and stenographers.

SASKATCHEWAN

C. West, of Weyburn, Sask., is to erect a new plant, and has been in Chicago looking up modern brickmaking machinery and producer gas kilns.

TENNESSEE

Bonds to the amount of $695,000 were recently sold by the city of Nashville, Tenn., to pay for street improvements, a large part of which will be brick. The Nashville Traction Company, operating street railway lines in the city, will at the same time pave between its tracks and two feet on each side, at an expense estimated at $250,000.

Dr. A. M. Purdue, of Nashville, Tenn., who is State Geologist of Tennessee, stated recently that there are available around Chattanooga and other Tennessee cities clays suitable for the manufacture of the highest grade of brick, tile, and other clay products. In spite of this fact, however, he points out that as yet there has been no movement to start plants to utilize this material. Business men in Chattanooga are keenly aware of the desirability of developing the industry, more than one brick plant being located there already. It is stated, however, that architects frequently specify brick made in other states, making it impossible for Tennessee brick to be considered in awarding contracts.

TEXAS

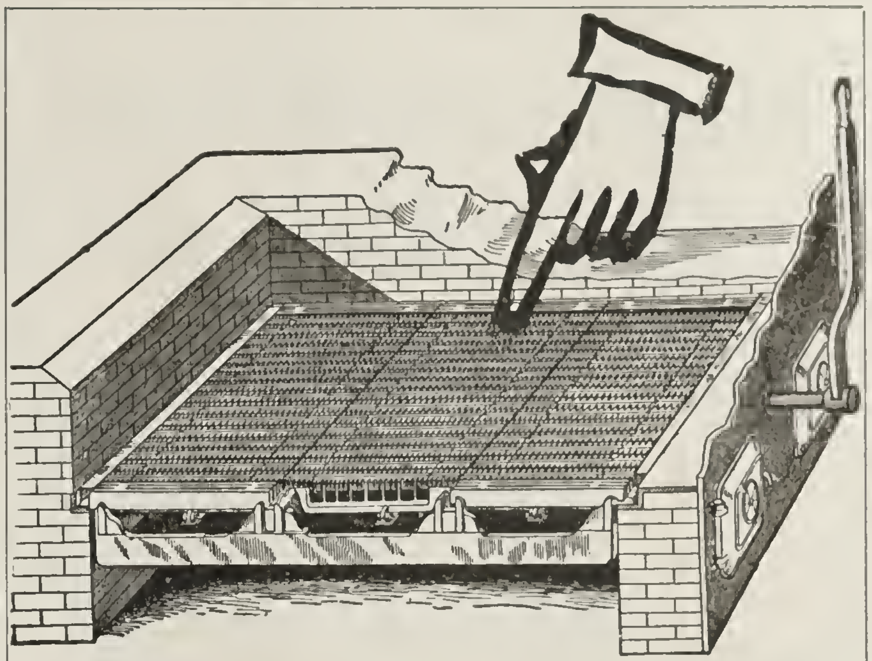
The Athens Pottery Company, of Athens, Tex., has begun the erection of a 40,000 per day brick plant.

O. L. Williams, the new commercial secretary for Teague, Tex., is in correspondence with clayworking interests with the idea of having a plant locate in Teague.

The Chamber of Commerce of San Antonio, Tex., are open to proposals from clayworkers, that will look toward the development of clay property in that city.

J. J. Sabin, formerly of Fort Smith, Ark., has taken over the plant formerly owned by the Libby Manufacturing Company, at Mount Pleasant, Tex.

The Stamford (Texas) Brick Company will begin to manufacture face brick in the near future, having in-



Martin Grates

Have Saved Money for These People

Why Not For You?

LEHIGH SEWER PIPE & TILE CO., Fort Dodge, Iowa.
Gentlemen:—The Martin Grates installed under our four 100 H. P. High Pressure Boilers are giving good satisfaction, and are wearing well. We appreciate them very much over anything we have ever used before.

NATIONAL FIRE PROOFING CO., Hobart, Ind.
Gentlemen:—Replying to yours of the 30th Ult., regarding our grates, will state that the grates you furnished us have been entirely satisfactory, very few repairs being necessary and I am sure it saves us a certain amount on coal bills.

LOGAN CLAY PRODUCT CO., Logan, Ohio.
Gentlemen:—In reply to your inquiry of the 12th inst., we find that the Martin Grates were purchased from you at the time we set our new boilers, and have been constantly in use for nearly three years. We are pleased to advise you that they have given us entire satisfaction.

WINNIPEG SANDSTONE BRICK CO., LTD., Canada.
Dear Sirs:—In answer to your letter of the 17th inst., with reference to the two sets of Martin Anti-Friction Rocking Grates with which you supplied us, would say, these grates are giving us every satisfaction and we are well pleased with same, as they mean a saving of about thirty percent in our fuel bill.

IRON CLAY BRICK CO., Columbus, Ohio.
Gentlemen:—In reply to your favor of the 4th, we beg to say that the Martin Grates installed in 1907 at our factory have proven eminently satisfactory. Our engineer is more than pleased. They seem to meet all of your claims.
They are not only labor and fuel savers, but permit us to burn a poorer quality of coal than we could do with the old style grates. They do not warp, and the indications after a year or more of use are that they will last many years.

WABASH CLAY CO., Veedersburg, Ind.
Gentlemen:—Your grates have given us good satisfaction, just as we expected them to do when we specified them for our new Stirling Boilers.

HASTINGS BRICK WORKS, Hastings, Neb.
Gentlemen:—Regarding your grates, will say we installed them all right and find same satisfactory in every way and a fuel saver, and our Engineer says it saves him half of his labor of formerly. We remain

WISCONSIN BRICK COMPANY.
Gentlemen:—Yours of the 13th received and replying will say we have used your grates for five or six years and have been well pleased with them.

Among other satisfied users are: Richeson, Nelson & Moore, Greenville, O.; Woodburn Tile & Brick Works, Woodburn, Ind.

You owe it to yourself to at least investigate the merit of our claims. It costs you nothing; catalog and full information on request.

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Machine and Hand Brick Moulds

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stalled new machinery for that purpose. The plant formerly ran on common building brick exclusively.

The Incorporation of the Cole Press Brick Company, of Ferris, Ellis Co., Tex., is noted. Capital stock, $42,000. Incorporators, J. M. Batchler, F. P. Crow, S. F. McAshan and W. N. Bullard.

J. H. Hartford, manager of the Post (Tex.) Brick & Tile Co., a corporation that is now being organized, wants to have his clay tested by some concern that is not in the machinery business.

Lawrence Comerford, of the Corpus Christi (Tex.) Sand Lime Brick Company has made a tour of inspection, during which he has visited more than twenty sand-lime brick plants in various parts of the country. He is selecting machinery for a new plant which he intends to install.

George E. Petty, Altus Wilder, J. S. Smith, Blake Smith and C. J. Kaul, all of Mexia, Tex., and J. J. Potts, of Waco, Tex., are the promoters of a new brick plant that will be located just west of Mexia on the T. & B. V. Railway. A spur track is now being laid, leading to the plant site.

R. W. Knox, M. D., Hospital Department, Galveston, Harrisburg & San Antonio Ry. Company, Houston, Tex., is interested in a brickmaking plant in or near that city, and writes that, while it has excellent machinery and other up-to-date equipment, it has, at times, trouble with mixing. He says that at a recent meeting of the board of directors, the proposition of getting a man to come down to the plant for three or four weeks, and "give the benefit of his experience"—maybe making it a permanent matter, was discussed.

J. H. Payne, secretary and sales manager of the Frazer Brick Company, of Dallas, Texas, has just had an experience which convinces him that newspaper advertising pays. About four months ago his concern decided to put in a plant to manufacture interlocking tile under the Denison patent. A systematic campaign of advertising was immediately begun in the local newspapers. The result was that when the plant was ready for business more orders were on hand than could be filled, and the plant has been operated night and day in an effort to catch up.

VIRGINIA

H. Mears, Springfield, Fairfax Co., Va., wants to be put in communication with manufacturers of moulds for soft-mud brick, and of kiln doors to be used in connection with wood fuel. He also wants prices and catalogs on brick barrows.

WASHINGTON

The Washington Unit Brick & Tile Company, a concern that in effect is to be a branch of the American Roofing Tile Company of Charlotte, N. C., has been organized and financed in Seattle, Wash., and work has been started in Seattle, on a new plant for the manufacture of fireproofing. Norman B. Abrams of Seattle, Wash., is president; S. C. Teale, vice-president, and Nelson Rich, Jr., secretary-treasurer.

Prospects for a large business in the Seattle (Wash.) district are not as good as they might be, and there is not enough business, at the present time, to keep the nine clayworking plants busy. The British Columbia market has gone to pieces and shipments to other parts of the Province, which, for several years, were rather heavy, are now light. This has caused the yards that had been doing a large business across the line, to fall back on the home market, and this has had anything but good effect on prices.

While the immediate future of Seattle does not look particularly bright for workers in clay, the prospects are that the time is not far distant when Seattle will be enjoying the beginning of a prolonged period of building activity. The traffic that will come, due to the construction of the Alaska railroad and the large number of private enterprises that will be set in motion there will center largely in Seattle. It is expected that the history of the Klondike gold strike will be repeated except that it will be of a more permanent nature. This brought thousands of men to Seattle and caused the opening of scores of wholesale houses. Building will necessarily be heavy and the brick man will have only himself to blame if he does not supply a goodly portion of the material to be used in this construction work. As stated above the tendency is again setting strongly toward brick and a persistent united campaign will work wonders.

W. T. Houlihan, formerly manager of the Builders' Brick Company of Seattle, Wash., has resigned his position, to become manager of the Harper-Hill Brick Company. He is succeeded by Frank T. Houlihan, formerly superintendent of the Builders' Brick Company.

C. D. Mayhugh, of Laconner, Wash., has taken up with the Anacortes Chamber of Commerce, the question of establishing a plant at the latter place, for the manufacture of brick, terra cotta and drain tile, at an estimated cost of $15,000.

WEST VIRGINIA

The Kenilworth Tile Company of Newell, W. Va., will add two kilns at a cost of $6,000.

At Parkersburg, W. Va., the United States Roofing Tile Company has plans about completed for the erection of a large addition to its plant. This increase in capacity is occasioned on account of business growth.

The Paden City (W. Va.) pottery is now running full blast, the product being brown and white fireproof crockery. A third kiln is now completed, which will increase the present output, the plan being to double the capacity within the next two years.

Thomas McAvay, of Grafton, W. Va., president of the Thornton Fire Brick Company, is purchasing machinery for the remodeled plant of that company, and has given the contract for the brick kilns to Gilbert Miller, of Grafton. D. B. Potter, of Clarksburg, W. Va., is the general manager.

Claude Nease, manager of the Kenilworth Tile Co., of Newell, W. Va., announces that a two-kiln addition and other extensions to the plant will be begun at once, representing a cost of $6,000, and the employment of 35 additional men. The contract for the brick work has been let to John Gamble. A new press room will be built, and extensions will be made to the kiln-sheds and also to the stock room. It is planned to have the work completed within two months. The Kenilworth Tile Works started in Newell with a single kiln. The two new kilns will make the factory a six-kiln plant.

State authorities in West Virginia, including Governor H. D. Hatfield and President James W. Lakin, of the State board of control, are considering establishing a brick plant at Huntington, using convict labor, the product of the plant to be used in the construction of public roads. The West Virginia statute authorizing the use of convict labor on the roads makes the project entirely feasible, and the fact that gas for manufacturing purposes

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Descriptive circular and prices furnished on request.

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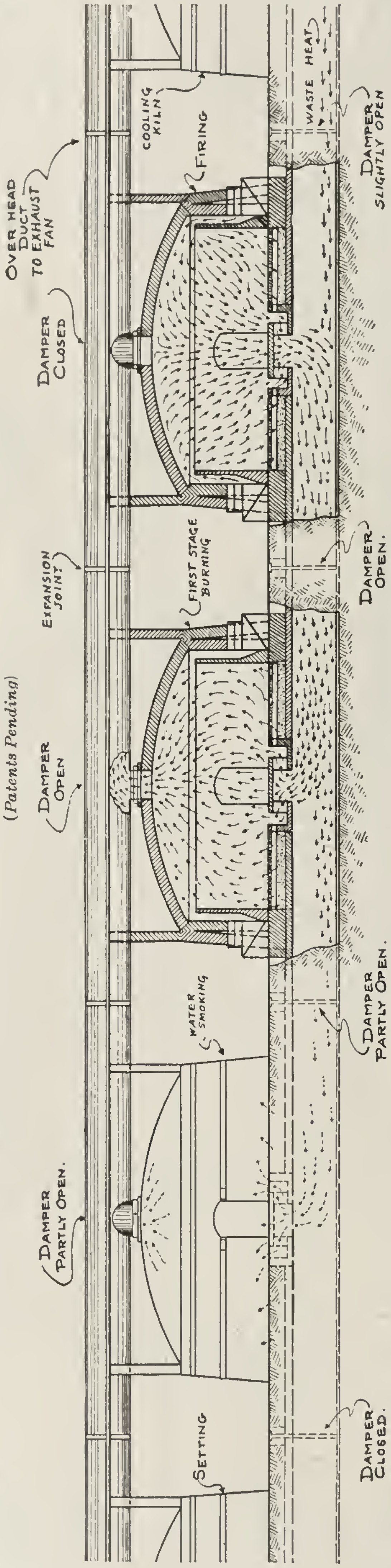

The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

can be had in Huntington at five cents a thousand feet, and that there is plenty of good brick clay in that vicinity, makes the combination a very strong one.

WISCONSIN

W. P. Henneman has bought the brickmaking plant at Chippewa Falls, Wis., formerly owned by John Theriault. It is said that there is a chance of the plant's being remodeled and put in operation.

San Francisco Exposition Sets Time Limit for Filing Applications.

Applications for space for exhibits in the various buildings of the Panama-Pacific International Exposition in San Francisco, Cal., in 1915 must be filed on or before the respective dates following:

For machinery and mechanical appliances intended for exhibition in operation, by August 15, 1914. For machinery and mechanical appliances for exhibition, but not in operation, by October 1, 1914. For works of art, natural products, and manufactured articles not expressly indicated in the notice sent out by the Commission, by October 1, 1914. For special concessions to individuals, associations or corporations, by October 1, 1914.

All applications for space must be in writing, addressed to the president of the Panama-Pacific International Exposition, and on forms provided by the Exposition Commission.

Increase in Use of Face-Brick.

Manufacturers of face-brick should feel much gratification with the announcement that comes from Cleveland to the effect that the use of that material in the construction of homes in that city has increased 50 per cent during the past year. This is the gist of the report of the Cleveland Face Brick Association, an organization of local manufacturers and dealers, which has been conducting a campaign of advertising and education. It is said that there has been a similar increase in the use of brick wherever the dealers are alive to their opportunity. A number of reasons, in addition to the foregoing are given for the use of face-brick and brick construction generally, but most of them must be considered insignificant and immaterial as the real reason for using brick is the fact that people generally wish that material rather than anything else that the market may afford. A member of the Cleveland association stated, a few days ago, that a great many people have the impression that a brick house is damp. They evidently brought that idea, he says, with them from the old home down state, and the solid wall house built ages ago. Our young friend may be very bright, but is apparently not acquainted with the conditions prevailing many years ago. In so far as the burning of brick is concerned, they were as good fifty years ago as they are today. He can go through many houses throughout the country, the brick composing them having been burned almost a century ago, and he will find the most perfectly made and perfectly burned brick; nor were the houses damp. The material itself is the best reason for its use. Brickmakers are just awakening to what they have to sell and if they cannot impress the desirability of brick as a building material upon an owner, it is probably their own fault.—"Construction News."

IN THIS NUMBER: HOW TORONTO IS SOLVING THE "HIGH COST OF LIVING" PROBLEM

BRICK and CLAY RECORD

SHERWOOD C. MARTIN
NATIONAL COUNCILLOR, AMERICAN FACE BRICK ASS'N. TO THE CHAMBER OF COMMERCE OF THE UNITED STATES

Classified Ads Pages 1339-1341

CHICAGO, JUNE 2, 1914

The Buyer's Directory Pages 1311-1314

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CLAY STORAGE

Carrying Fine Material to Storage Tanks

If you have an up-to-date, economical storage system for your clay supply, you have, in at least one department, an up-to-date, economical plant.

If, on the other hand, you take your clay as it comes from the bank, pit or mine, depending upon weather conditions, and the hit-and-miss methods of the old-fashioned plant, you are not doing your plant justice.

It is just as important to have an adequate amount of both raw and ground clay, stored against emergencies, as it is to have a reserve fund in the bank—more important, in fact, since you can borrow money, but you cannot borrow clay.

Clay may be handled into and out of storage at a very low cost, which is more than offset by the improved quality of the clay and the consequent improvement in the ware. The fact that your machines are assured a full supply of raw material at all times is an additional profit that cannot be computed in dollars and cents.

If we design and install your storage and handling system, you will increase your capacity and reduce your manufacturing cost.

Let Us Work With You and For You

A Postal or a Short Letter Will Bring a Dividend

Weller Manufacturing Company

CHICAGO

New York Office: 50 Church Street

St. Louis Office: 520 Victoria Bldg.

BRICK and CLAY RECORD

Brick Established 1894

Clay Record Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING

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The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

HUMANITY is the Keynote of Modern Business. The "Soulless Corporation" will soon be a Memory instead of a Fact. The cartoonist who pictured employers as stout men with bulbous faces, and clothes in which Dollar Signs ornamented plaids, is seeking a new outlet for his alleged humor.

A Certain Wielder of a Big Stick Came out for a Square Deal. A Great Party declared itself as against Privilege—which means Undue Advantage.

"Safety First" has taken the place of "See our Lawyer."

Welfare Work among employes is becoming the Rule, rather than the Exception.

One of the largest of the Nation's industries adopted a profit-sharing plan some years ago. Through it, thousands of employes became share-holders. At the Annual Meeting, held a month or two since, the men, instead of signing proxies in favor of the official designated by the board of directors, appointed one of their fellow workers, who went to the meeting for the sole purpose of telling the Men in Control how Well Satisfied the workers were with the conditions of labor.

A Great Awakening has come to the men who have gained the Heights of Industrial Power. It augers well for the future of these United States of America.

SERVICE is the Watchword of Modern Business. The day of the Slick Salesman is waning. The Farmer who put the Bad Apples at the Bottom of the Barrel finds a Better Outlet in the Cider Press.

Co-operation let Light into the Darkness of past Business Methods. The Man who felt that a "sucker was born every minute" failed to find him in the association with which he cast his industrial lot.

He found that the man who discredited his business by false weight, false representation, false quality and false service, could not stand the investigation of his next-door neighbor.

While sleuthing for "bad breaks" on the part of his competitor-associate, he ran across many that looked familiar. Close scrutiny brought out the fact that they were of his own making.

He had to "clean house" before he could call attention to what the "other fellow" was doing, and while he was busy sweeping and scrubbing and dusting and shaking his own affairs, the "other fellow" seemed to take notice and do a little scouring on his own account.

Now, instead of sitting up nights to figure out how little he can give and how much he can get, the Successful Business Man lays his plans to give as much as he can, for as fair a price as he can command, and make a living profit.

Instead of impoverishing himself in a vain attempt to put someone else out of business, he builds a Great Confidence in his wares and a Great Influence for himself by Service—the Philosopher's Stone of the Twentieth Century.

FIFTEEN lines at the Southeast point of "The Editor's Corner" in the May 5 issue of "Brick and Clay Record" did more to bring this journal in close touch with its readers than any other one thing it had published in the past year. They had to do with the suggestion that the semi-monthly publication be discontinued and bespoke the support of the clayworking industry. Letters from practically every state in the Union have come in, protesting against what the writers are pleased to call a backward step, and urging a still greater service to the men whose lives are devoted to the manufacture of burned clay products. Some of these suggestions are of inestimable value and, as time passes, will bear fruit. At present they are the sign and symbol of a bond of sympathy that exists between this paper and its subscribers—a mutual helpfulness that brings a Renewed Courage and a New Resolution to Serve the Many who depend upon our pages for the news of the World of Claycraft. Lack of space prevents the publication of these letters at this time, but it is hoped that they will be given prominence in a later issue. In the meantime, "Brick and Clay Record" offers its sincere and heartfelt thanks for the interest displayed by its friends—the subscribers.

NO OTHER item of cost enters so largely into the total expense of clayworking as that attached to the transportation of these products to near and distant markets. No other item of expense has been so shrouded with mystery as to the "why's and wherefore's" of the charges that swell or diminish it. Clayworkers, in common with other manufacturers, have felt it useless to protest, tiresome to file claims, unprofitable to make charges against the carriers upon whose good will so much of their business progress seemed to depend. The fact that a score of men were making huge amounts by checking old freight bills, and "splitting" the overcharges found and recovered, seemed to sound no warning note to the men who accepted the rates given them by local freight agents, as being the "lowest legal rate." The delays that followed the making of claims for goods damaged in transit and other manifestedly fair charges discouraged similar and just as reasonable claims.

"Brick and Clay Record" now comes to the rescue of its subscribers, and asks them to unload some of their freight troubles upon the "Freight Tariffs and Troubles" Department. It offers them a service Gratis that means Real Money to them. The only things necessary is to Use it—as freely as it is given.

ATTENTION is called to the article on Community Building in this issue of "Brick and Clay Record." This subject is one that should be brought to the attention of associations for civic welfare, everywhere that bodies of this kind exist. Heretofore, single philanthropies have financied spasmodic building ventures, but these have been the outgrowth of crowded cities, where "model tenements" have been built to wipe out disease breeding localities and supplant horrifying conditions with those that were, at least, sanitary.

In the great majority of cases, these "model tenements" have been built on land made valuable by the buildings that have grown around it, and have had to carry the investment in a property that was, to a certain extent, artificially valuable.

Cheap land was made a prerequisite to Toronto's plan. The houses are small, homelike, individual. They bear none of the earmarks of a hateful charity. Their cheapness is the result of cheap land and cheap money, two things can be best obtained with municipal help. When so secured, the beneficiary, who is a part of the municipality, feels an independence impossible with any private philanthropy.

In time, these City-aided homes will be bought in by their tenants. With the money so obtained, a new community can be built. Could City money be spent in any better cause than in bettering the home conditions of the citizens of that City? Toronto has shown America the way.

REPRINTS of articles in "Brick and Clay Record" are being used to help the sale of clay products. One of the best that has so far seen the light is that published in this issue on the Economy of Brick Paved Roads. The type will be held for a time, and clayworkers who see the value of articles like this, illustrated with work that has stood the test of time and traffic, will do well to send for prices, and so reap the benefit of a large edition, printed at one time, and with consequent low cost.

In the June 16 Issue

The Beginning of a Series of Articles on Firing and Burning by Ernst Schmatolla, Combustion Engineer, Graduate of the Berlin Royal Polytechnic.

Brick's National Councilor

A Brief Sketch in Which a Great Force in the Clayworking World Is Given Some Deserved Appreciation

Sherwood Christy Martin*

President Kittanning Brick and Fire Clay Company

AT Washington, D. C., an association is at work, watching legislation that effects the Nation's business. It ascertains the opinion of industry and makes that opinion known—and felt.

This association is made up of men who stand at the head of their respective callings, of representatives sent to it by more than a hundred National Trade Associations.

Their influence is immeasurably strong, in that they have no political axes to grind, no "party whips" to obey, no electorate to placate, no foreign policy to embarrass, no individual interest to serve.

This Congress is known as the Chamber of Commerce of the United States of America.

To it comes Sherwood Christy Martin, of Pittsburgh, Pa., sent by the American Face Brick Association to represent Burned Clay in the councils of the Nation's Industry.

No stronger representative, no man better fitted to speak for burned clay, could have been chosen.

Quiet, forceful, conservative, successful, with wide acquaintance, immense business interests—a brickmaker whose product has stood as a standard of everything that a brick should be, for more than twenty years, and which has entered into the construction of more important National, State, City and Educational buildings than any other face-brick made in the country—he brings a practical knowledge of the needs, the use and the importanceof brick, to a Council in which he will sit as Brick's chosen representative.

S. C. Martin originated the manufacture of the "Kittanning" brick. He organized the Kittanning Brick & Fire Clay Company in 1892, and has since that time been its president. In 1895 he organized the Martin Brick Company, of Pittsburgh, Pa., for the purpose of distributing not only the product of his Kittanning factory, but of a host of other colors, qualities and textures in face-brick. He is officially connected with the Yingling-Martin Brick Company, of Johnsonburg, Pa., manufacturer of the well known red, rough-textured "Art-brique."

Ask S. C. Martin his particular "hobby," and he replies: "My hobby is making good brick." Look at his organization and you will see that he believes in the power of a modern, efficient selling force. The men who carry the story of Kittanning brick to the near and distant markets it invades, are the highest type of face-brick salesmen. Behind them is order, system, management, service, high quality, honesty of purpose, determination to serve well.

S. C. Martin is far-seeing. He believes that the ruinous competition in brick, which has characterized the industry for many years, is being replaced by a safer, saner spirit of co-operation—a spirit that will, at no distant day, develop into a powerful force. And in this coming prosperity, he sees the manufacturer and dealer side by side, of equal importance in the battle-field of brick against its allied rivals.

And, as a natural sequence, his brick plants are models of economical manufacturing efficiency, while his sales-offices, in Pittsburgh and New York are examples of everything sales-offices should be. In them he meets every requirement of modern business ethics—allows no misrepresentation, no "grapevine circuit" to preferment, no force, save the pressure of the best the market affords, served in the best way known to the trade.

S. C. Martin is kind, thoughtful of the men about him, charming to the men with whom he comes in contact. His personality impresses itself upon his most casual visitor, and gives each one who has had the pleasure of meeting him, the feeling that he has met a man whose intense power is cast in shadow by a wholesouled sympathy with the problems that beset the clayworker.

*Portrait on Front Cover

Highway Robbery

Prominent Washington Brick Manufacturer Concerned in (or About) Serious Offense Committed in the State of Illinois

THREE State Governments are involved in what has been construed as "Highway Robbery" and concerning the loss of two magnificent brick paved roads, in which a Far West community took more than passing pride.

In the Geographical Court of the State of Washington, for King County.

Denny Renton Clay & Coal Co., Seattle, King County, Washington, Plaintiff. Brick & Clay Record, Chicago, Cook County, Illinois, Defendant.	No. 41144 Summons and Complaint.

THE STATE OF WASHINGTON, To the said BRICK AND CLAY RECORD, Defendant:—You are hereby summoned to print in your next issue after the service of this summons upon you, exclusive of the day of service, and defend the above entitled action in the Geographical Court of the State of Washington for King County aforesaid; and answer the indictment of the Plaintiff; and in case of your failure to do so, judgment will be rendered against you, which will be filed with the Clerk of said Court, (a copy of the complaint being herewith served upon you).

Complaint.

The Plaintiff complains that the aforesaid Defendant is twice guilty of "Highway Robbery," having deliberately and without cause, taken and removed from the State of Washington, one certain section of the Pacific Highway, between Kent and Auburn, King County, and one certain section of the Bothell Road, in the same County, both of which are geographically and otherwise located in the State of Washington,—placing and locating same in the State of Oregon.

We submit as evidence "Exhibit A"—Brick and Clay Record for May 5th,—on pages 1034 and 1035 of which are shown cuts of the aforesaid two Roads,—the same being labeled as being located in the State of Oregon.

Plaintiff........DENNY-RENTON CLAY & COAL COMPANY.
P. O. Address................................Seattle
County of......................................King
State of...............................Washington

Modern business requires the assistance and advice of trained legal luminaries, quite as much as modern families need physicians and dentists. "Brick & Clay Record" thought itself well provided with counsel until the foregoing summons reached its Editorial Offices, one rainy Tuesday in late May. Then it developed that, in what was truly an hour of need, the regular legal staff, although qualified to practice in Federal, State, County and Municipal Courts, had no standing in the High Geographical Court of any State in the country.

A diligent search of the purlieus of the law brought forth no one better equipped, and it was thought necessary to send some unwilling representative on the long trip that would be necessary to make a full legal appearance in Seattle, when the thought came that a case like this could be settled, as it were, out of court, provided both parties to the suit were of a mind that was open, broad and filled with the spirit of cooperation that is so mighty a force today in the world of claycraft.

"Brick and Clay Record" realized the enormity of taking from out the great State of Washington even one of the good roads that the Denny-Renton Company strived so hard to make. It hangs its head in confusion when it feels the enormity of taking both. And, like the old, droll story of an entirely different affair, it must confess that it found neither pleasure nor profit in the act. No word of appreciation has come from Oregon. No appreciation from other coast states that must have envied Washington, and gloried in her devastation.

Ignorance of the law is no excuse in legal circles. If it were, many lawyers would "own up" and judges gain enviable reputations. Criminals have been known to claim "frame-ups" and pickpockets to state that stolen goods found their way into overcoat pockets without the knowledge or consent of the man who stood before the bar of justice.

No plea seems open on lines like these. It would appear, therefore, that nothing remains but to throw ourselves upon the mercy of the Court and make what restitution that tribunal deems necessary.

On another page—on several pages of this issue of "Brick and Clay Record" are shown brick roads built in Ohio. If Washington wants one or two of these, to replace the roads that "Brick and Clay Record" gave Oregon, we are sure Ohio can spare them. Indeed, the scene of "Daddy" Blair's activities has so many magnificent brick highways, that it would not miss a round half dozen.

Or it may be, that the Pacific Highway, feloniously abstracted by "Brick and Clay Record" was so hidden from Oregonians, being placed in a county called Kings (and there being no such county in Oregon) that it has been so little used since May 5th, 1914, the day upon which it was taken, that it can now be replaced in the State of Washington, as good as new, and twice as natural.

If so—(sound of trumpets and beat of drums) THE SECTIONS OF THE PACIFIC HIGHWAY ILLUSTRATED ON PAGES 1034 AND 1035 OF VOLUME XLIV, "BRICK AND CLAY RECORD" WILL BE FOUND BY ALL TRULY INTERESTED SEEKERS AFTER GOOD ROADS, IN KINGS COUNTY, WASHINGTON. THERE, AND IN NO OTHER PLACE CAN SUCH WEAR-, AGE- AND WEATHER-PROOF ROADS BE FOUND.

Chicago's Brick Strike.

As this issue of "Brick and Clay Record" goes to press, no definite decision had been reached in the Chicago common brick strike. The manufacturers, after stating that they would begin hauling the 170,000,000 brick now piled on the yards and in the kilns, decided to make one more attempt to settle the difficulty amicably, rather than run the risk of plunging Chicago into an industrial warfare that might tie up building operations for months to come.

Chicago has had labor troubles in the past. Almost without exception they have been accompanied by violence, and, in some instances, murder has been resorted to. Misery and suffering has touched countless homes in which no member of the family was even remotely interested in the controversy.

Every man who has the welfare of Chicago at heart hopes for a peaceful outcome. Every civic organization stands ready to mediate, if such a course be possible. Every human interest breathes the hope of a quick resumption of work, under conditions that will benefit the workers and the men who make work possible.

Immense Appropriations for School Buildings.

The Board of Education of Chicago is apparently preparing for a big building campaign, the investment of money in school sites during the past two years and the sites ordered to be purchased during the next few months being upon an extensive scale. The city paid out in 1913 $1,837,310 for new sites and land for additions and ordered the purchase of eighteen additional sites and land for 23 additions. During the year six new school buildings and twelve additions were completed, and at an aggregate cost of $3,349,000. Buildings under contract and not completed include ten new and six additions, to cost $3,720,000.—"Construction News."

Operative Potters Elect Officers.

President Edward Menge and all other officers of the National Brotherhood of Operative Potters, excepting Seventh Vice-president Frank Grotton, have been reelected in the referendum vote of the 7,000 members of the organization, according to the official returns compiled May 28.

Aside from Menge, the successful candidates are: First vice-president, F. H. Hutchins, Trenton, N. J.; second vice-president, S. M. Burgess, of East Liverpool, Ohio; third vice-president, John Randolph, Trenton, N. J.; fourth vice-president, S. M. Moore, Trenton, N. J.; fifth vice-president, George M. Martin, Trenton, N. J.; sixth vice-president, T. M. Woods, Sebring, Ohio; seventh vice-president, John Shingler, East Liverpool, Ohio; secretary-treasurer, John T. Wood, East Liverpool, Ohio.

The organization, which has unions in all parts of the United States and Canada, will hold its twenty-fourth annual convention at Atlantic City, N. J., commencing July 3.

Bricklayers to Build Brick Plant.

At one of the sessions of the State conference of bricklayers, held at Temple, Texas, May 21, William J. Bowen, of Indianapolis, Ind., chairman of the executive board of the International Union of Bricklayers, Masons and Plasterers, announced that $100,000 had been appropriated by the union to erect a brickmaking plant at El Paso, Tex., which will undertake to furnish contractors with material at a price that will compete with cheap Mexican labor.

Bowen had just returned from El Paso, where he had been one of a committee authorized to make arrangements with the local authorities and to locate a proper site for an up-to-date plant. It is said that every known device for the economical production of brick will be employed, and that this is the first of a series of plants to be erected by the men behind the trowel.

A Heat Insulating Brick.

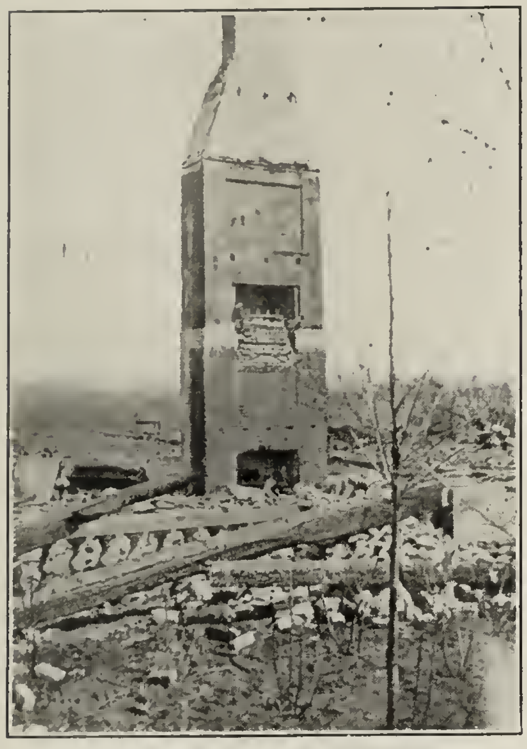
Considerable attention has been attracted in boiler circles to an insulating brick now being put upon the market by the Armstrong Cork Company, of Pittsburgh, because of its several novel characteristics.

The brick is composed of a mixture of infusorial earth, a small quantity of clay and finely ground cork, the latter ingredient being burned out in the firing, leaving the body in a state resembling a sponge. The pores are isolated one from the other, thus making each indention in the fabric practically a vacuum cup through which the heat cannot pass from one side of the brick to the other when used as an insulating course.

The brick are 2¼x4x9 inches and weigh about one and a half pounds. They are sufficiently strong to be laid up with fire or common brick yet their conductivity is remarkably low, registering 12 British thermal units per square foot per degree of difference in temperature for one inch thickness in 24 hours; or about one-tenth the conductivity of ordinary common hard brick.

Are You Using
the Questions and Answers Department? A "Question" Costs Only a Stamp, An Experiment May Cost Many Thousands of Dollars

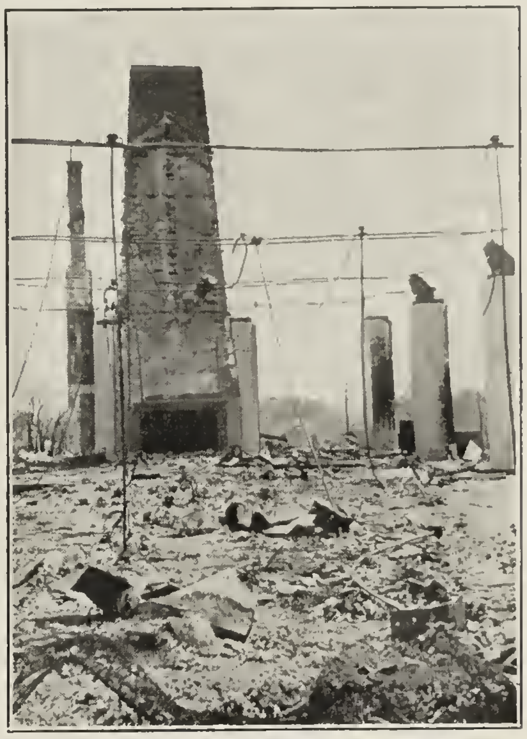
The Homewood Country Club.



The Brick Chimney Stands Alone. Note the First and Second Story Fireplaces.

The Folly of the Fire Trap

In Which is Shown the Inconsistency of One Kind of Semi-Fireproof Construction



One of the Chimneys in the Locker Room. The Reinforcing Wires are Almost Intact.

AT FLOSSMOOR, a town 23 miles south of Chicago, $150,000 went up in smoke when the clubhouse of the Homewood Country Club was struck by lightning, Monday, May 4th. Owing to the fact that the house had not been formally opened, and, as a consequence, had practically no one sleeping in it, the loss was marked merely as a financial one, without the added horror of a toll of human life.

The transformation from one of the handsomest country clubs in the Middle West to a heap of charred rafters, of crumbling cement, broken glass and twisted iron was accomplished in less than an hour.

This building was erected five years ago *to replace a wooden structure that had been destroyed by fire.* The club is a large one, its membership made up of the wealthier men of Chicago, and problems of finance are not hard to solve. The links have been the scene of many important championship tourneys, and a good sized, roomy house was a necessity. So $150,000 was subscribed, and a building with concrete foundations, brick piers, steel columns and wooden floors and roof beams was erected to *take the place of the wooden building that had been destroyed by fire.*

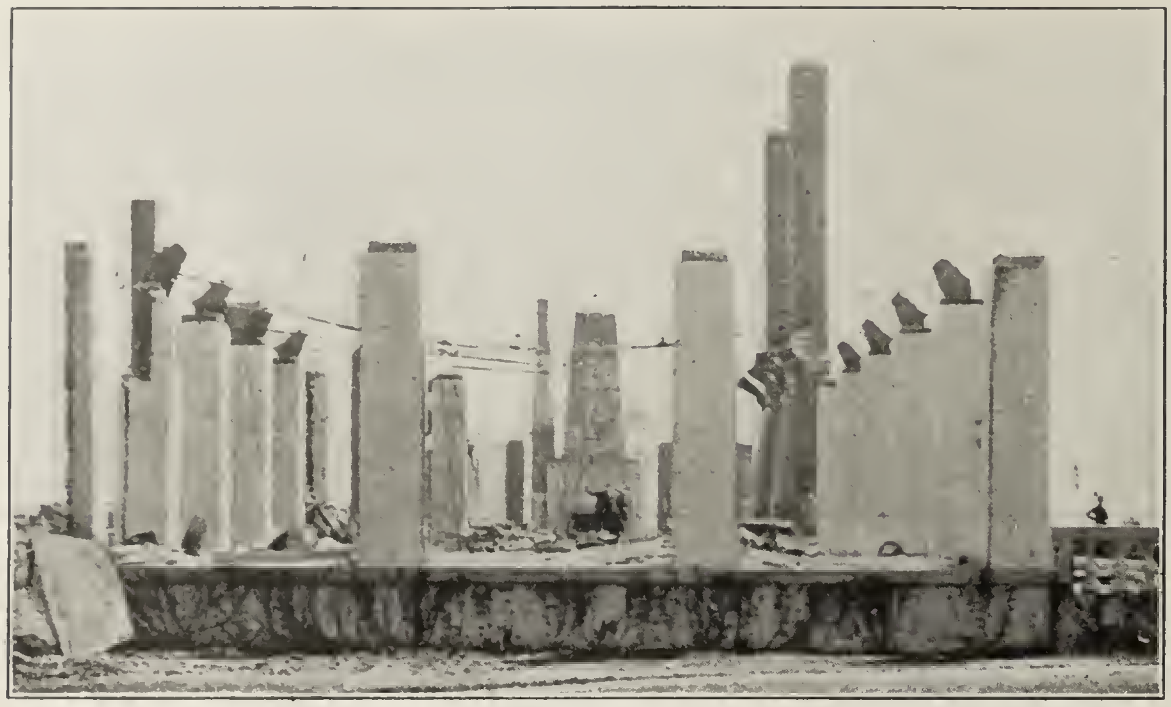
The Homewood Country Club is about a half mile from the Flossmoor station and the house well inside the enclosure. It was, as may be imagined, somewhat isolated and not within easy distance of any adequate fire fighting apparatus. A Chicago paper, reporting the loss, said:

"The clubouse had not been opened for the season and there were no members in the dormitories. The manager and two groundkeepers discovered flames going through the roof near the center of the structure. They summoned the Homewood fire department and bucket brigades were formed by residents of the neighborhood. Lack of water pressure prevented streams being played on the flames from the hydrants.

"The main building, which was built about five years ago to replace a wooden structure destroyed by fire, was of concrete construction and supposed to be fireproof. All attempts to save it were given up and the fire fighters directed their attentions to the locker rooms, but flames had gained such a headway there that it was impossible to check them."

Note that the building was "supposed to be fireproof." Had the fire occurred in the height of the season, when wives and children of the members would have been sleeping under the roof in fancied security, the first pages of the country's papers would have dripped horror for days.

Had this clubhouse been built in city limits, the fact that it would contain dormitories and guest rooms would have

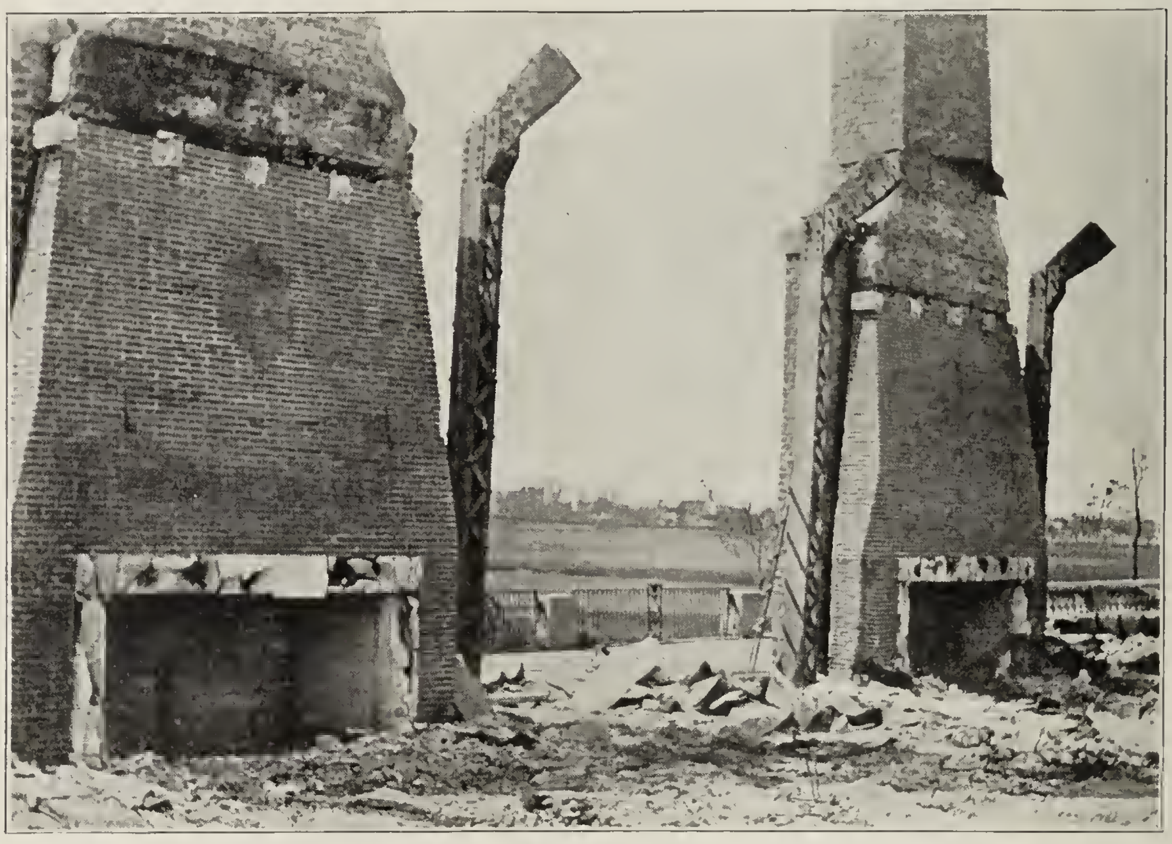


This Is What Remains of the $150,000 Homewood Country Club. One Hour after this Building was Struck by Lightning, it was a Mass of Charred Ruins.

brought it within the definition of certain codes and ordinances that would have assured safety to sleeping guests and servants.

The rapidity with which this fire spread is an argument against the building of a so-called fireproof shell, roofed with shingle, filled with tinder-like wood, light draperies and almost every sort of fire-feeding material known, and then calling it fireproof. With drafts cunningly arranged, through openings to basement rooms, that, in turn, feed air to high stacks, these buildings are about as fireproof as kilns—and burn as fiercely. The main difference is that kilns seldom, if ever, are accidently fired from the roof, or by lightning.

A glance at the illustrations of the house as it looked before the fire, and at what remains today, shows that the brick piers stood with little, if any, damage. The white piers, built of highly vitrified fireclay brick, show a marked spalling, due to the suddenly applied high heat, and the cooling process of the firefighters, to whose efforts these exterior piers were most open. The larger piers, built of shale brick, and not so highly vitrified, suffered no damage whatever. This is a condition that contradicts a well established theory in brick mantels—that shale brick can be used in the lining of the fire-box only when coal or gas is to be burned, the sudden heating and cooling of a wood fire being apt to cause them to spall and flake.



The Twin Fireplaces in the Assembly Room. These are the Piers that Show in the Front of the Main Structure.

At every point where the flames were in direct contact with the reinforced concrete, the concrete crumbled and exposed the reinforcement. The wire-lath and other supposed fire-retarding materials lie in the heaps of refuse, above which tower the piers and chimneys of brick, the piers still grasping, as it were, the steel flanges that supported the floors and ceilings. Across the space in which the piers stand is seen the heavier reinforcing wires—the rest have gone down into the scrap heap. In another picture is seen the first and second story fireplaces, nothing left but the chimney itself and the brick facings. Here again brick stands practically unscathed, its rivals, gypsum, cement, wood and steel lying crushed and broken, prostrate upon the ground before it.

Fire made a "final and official test."

The pictures tell the story.

Will the Homewood Country Club build another house, "supposed to be fireproof" to replace this—the second of its homes to be destroyed by fire?

Will the Homewood Country Club tear itself away from the notion that *because a building is in the country it must be of frame construction?* Will it set against this the fact that the water pressure is, as a rule, bad? Will it understand that a frame building, in the heart of a city, is safer than a semi-fireproof building so many miles away from a real fire department? Or will it wait until the third fire comes, and adds the horror of a great loss of life?

Or, since it is, to all intents and purposes a hotel, will it search the country over for the best type of hotel construction—and build that way?

With This Issue

"Brick and Clay Record" announces a Free Service for Clayworkers, in connection with everything that has to do with Freight Traffic Problems. Read page 1278 and take advantage of this Free Service.

Profit Sharing and Its Benefits

At GRAND RAPIDS, Mich., the Clipper Belt Lacer Company has entered its second year of profit-sharing, inaugurated on the eve of Christmas, 1912. The first year was, practically, an experiment, and applied to one department only. The result was a 50 per cent increase in production and a consequent reduction in overhead, together with a reduced operating cost, despite the fact that the employees in the department in which it was tried received from 33 1-3 to 50 per cent more in individual wages.

The conditions of labor have been improved, the additional lighting and space cost being absorbed by the increased profits of the company. The general physical condition of the employees has been improved and the added effort necessary to an increased output has not resulted in any apparent fatigue. The hours of labor have been shortened, an all-year Saturday half holiday has been inaugurated, and provision made whereby each employee receives, at the end of the year, a bonus of 5 per cent of the amount he or she has received in wages during the year. This applies to all employees, irrespective of the term of service, with an additional 1 per cent for each year of previous service—that is, employes who have been with the company two years receive 6, instead of 5 per cent, those who have been in the company's employ three years receive 7, instead of 5 per cent, and so on, until the maximum of 10 per cent is reached, which, it is promised, will be continued so long as the company operates on a profitable basis.

More than $3,000 was distributed to the employees on Christmas eve, 1913. One stenographer and one drayman received the maximum 10 per cent of the wages paid during the preceding year. One of the incidents of this distribution was found in the fact that a cottage occupied by one of the women employes and a dependent mother was destroyed by fire a few days before Christmas, none of the furniture or household effects being saved. She came to the company's office a day or two after Christmas and stated that, were it not for the bonus she had received, she and her mother would have been homeless paupers.

The direct benefit received by the company is shown by the following:

The yearly output was nearly doubled with only a slight increase in the working force.

The cost of the Clipper Belt Lacer was reduced 9 per cent in spite of the fact that the employees making it increased their earnings nearly 20 per cent.

The output of one important piece, for which 20 cents is being paid, on a piecework basis, was so greatly increased that, figured on the former daily wage basis, it would have cost only 11 cents labor per piece.

Figuring all departments, the average gain to operatives was 19 per cent and the average direct gain to the company nearly 9 per cent.

The indirect gain to the company, because of a more hearty co-operation of employees with each other and with the management cannot be expressed in figures.

There will be no "labor troubles" in the Clipper Belt Lacer plant as long as the company continues to pursue the policy of giving its employees the large share of the increased earning. A case in point was cited: One very capable workman was so embittered by real or fancied wrongs in the "Old Country" and in earlier experiences in America that he was continually preaching anarchy and endeavoring to stir up trouble. He had consistently scoffed at the sincerity of the management in its profit-sharing plan and had lost no occasion of warning his fellow workmen that this was only a trick to put a yoke around their necks. Fortunately, he had few followers, as he was a comparative newcomer and the older employees trusted the management.

When he found over $70 extra in his Christmas envelope, he went straight to the president's office and with tears coursing down his cheeks asked to be pardoned for all the harsh things he had said against the company. He is now one of the most efficient and loyal men in the whole force.

The plan will be continued in force indefinitely, and will, of course, become more expensive in proportion to the added years of service of employees who stay.

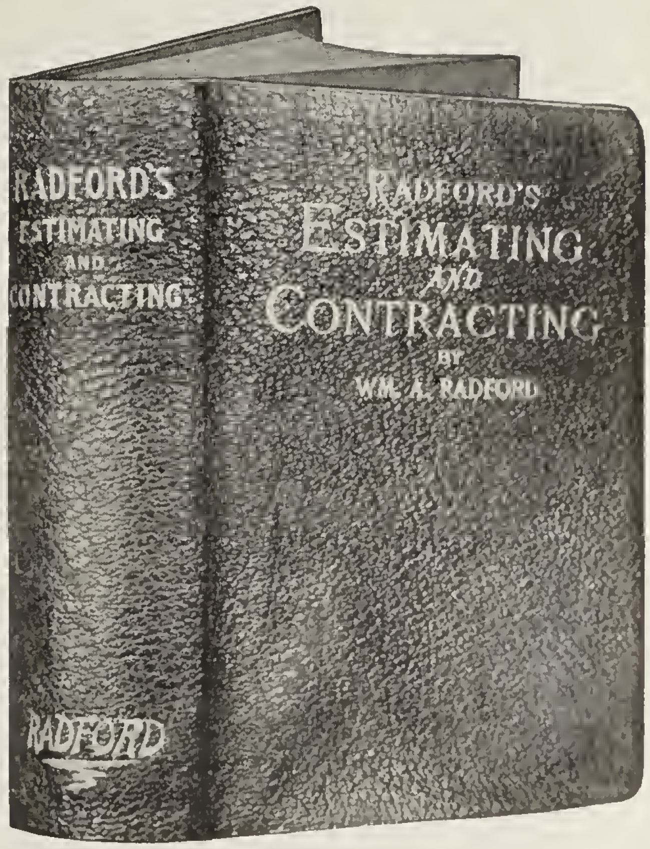
A New Book on Estimating

A brand new, practical manual of up-to-date methods for rapid and accurate calculation of costs for all kinds of approved modern construction is found in Radford's "Estimating and Contracting" a limp leather covered book of 896 pages, 5x7½ inches—a handy pocket size.

The ability to make correct estimates of cost is the very foundation of all arguments on the comparative merit of fireproof construction as opposed to frame, and of the various forms of fireproof construction as compared to each other. With this book in hand, the brickmaker can refute the arguments advanced by the manufacturers of materials that seek to replace his product in many kinds of construction, as well as giving him correct data upon which to base his own estimates for buildings he may be interested in putting up in connection with his own plant.

This book is not written from any single angle—the figures it gives are fair to every known and standard building material. It classifies the cost factors, gives figures common to construction in general, to carpentry work, roof construction, mill work, masonry and concrete construction.

It is supplied through "Brick and Clay Record's" Book Department at $2.00 a copy, postage prepaid.



How Toronto the High Living”

WITH a Million Dollars subscribed by philanthropic stockholders and guaranteed by the Toronto City Council, the Toronto Housing Company is erecting a community of small, well planned, fireproof houses, to be rented at such low figures as to provide comfortable, sanitary homes for working people. The immensity of the operation and the consequent low cost, taken together with the fact that all rentals are based upon a return of but five per cent, makes this enterprise one that city-planning and housing experts are watching from all parts of the civilized world.

One of the Small Brick Houses Erected in Toronto, Canada, and Described in This Article.

SOME of the elements entering into the construction of cheap houses are: (1) Cheap land; (2) Cheap money, and an ample supply of it; (3) Cheap building material; and (4) Cheap labor.

I put these in the order of their importance. As I do not believe in cheap labor, I probably should not have included this at all. Labor today is not overpaid except in cases where it is inefficient, so that all we should do to economize in this regard is to see that we get proper workmanship.

LAND.

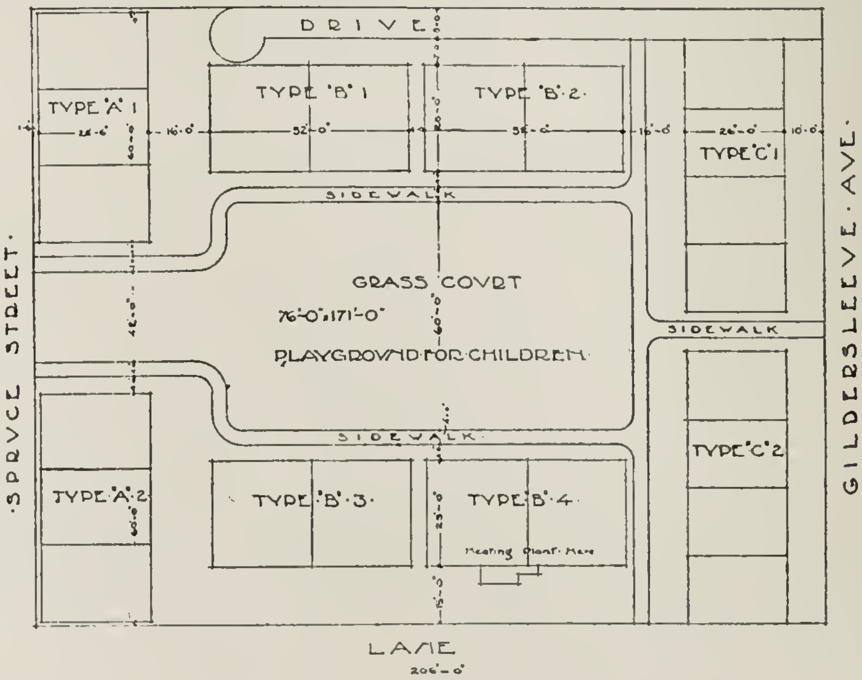
The cost of land is such an important and increasing item of cost that no effort is too great to make more of it available for housing purposes. Rapid and cheap transportation is unquestionably the goal to be aimed at as the most hopeful means to this end. Much land at present used for farming purposes could be secured at a cost not exceeding $400 an acre. After making large provision for open spaces the cost of each building lot need not exceed $50. At present the cost of land in Toronto approximates $750 for each dwelling. This entails a very heavy charge upon the tenant. It is fair to assume that rentals would be lessened by from three to five dollars a month were cheap land made reasonably accessible.

Having once secured cheap land, the problem then becomes how to retain it at a reasonable price. Without going into a lengthy discussion, I desire to state my conviction that our system of taxation should be reformed and land should bear a considerably heavier tax-rate than that placed upon improvements. Further, it is inconceivable that educated communities will forever allow values created almost exclusively by communal activity to be appropriated by land owners who may have done nothing whatever to create such values. I am not advocating the single tax, but surely some amendments to our present tax system are greatly needed, and I know of no other course by which, having once obtained cheap land, we may reasonably hope to retain it at a usable valuation for housing purposes.

It is also my conviction that brick dwellings of moderate size, of desirable type, and with satisfactory sanitary conveniences, costing not more than $1,250, should be entirely exempt from taxation until such time at least as we are provided with ample accommodation of this character to house our wage-earners. Some encouragement must be given if we are to secure an adequate supply. No one means will be found sufficient, but by all combined it may be reasonably hoped that we shall do something substantial toward meeting the existing great need.

FINANCE.

We now come to the question of cheap money and an ample supply of it. Believing the proper housing of our people to be a communal and not an individual responsibility, representatives of the Toronto Housing Company approached



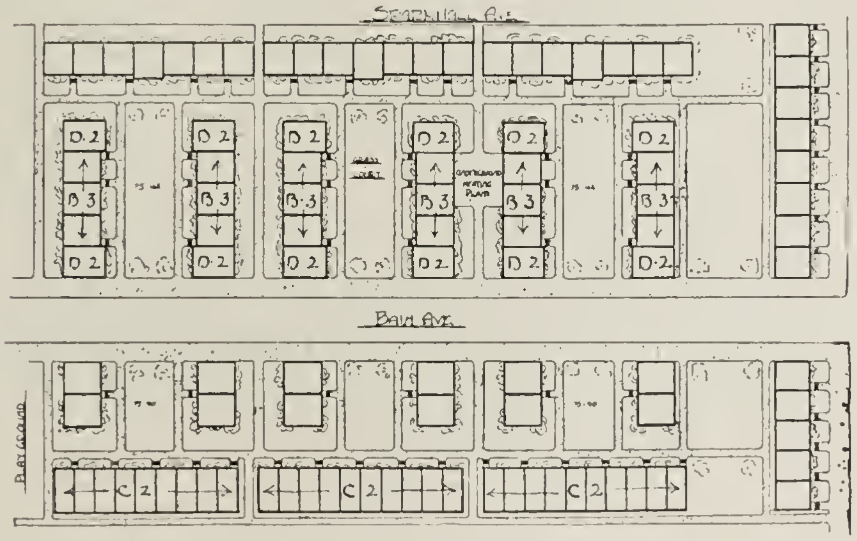
is Solving "Cost of Problem

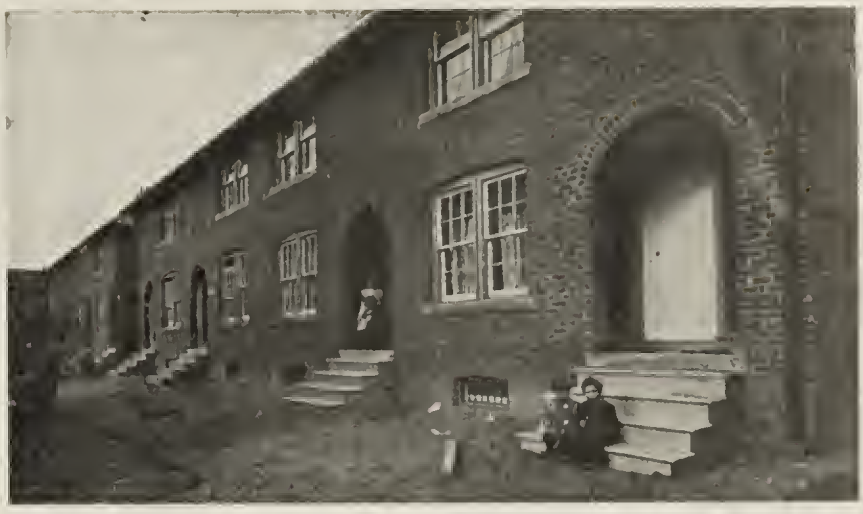
THE text of this article is from an address delivered by G. Frank Beer, president of the Toronto Housing Company, before the National Conference on Housing in America. The illustrations are used by courtesy of "Construction," an architectural journal of high order, published in Toronto, Ont., by H. Gagnier, Ltd. In presenting the subject to "Brick and Clay Record" readers it is hoped that the plan by which our Canadian cousins are solving the problem of cheap houses, will find the flattery of imitation in this country.

the Government of Ontario with a request for assistance. We claimed that private initiative had failed always and everywhere to provide an adequate supply of cheap houses for working people, and this being the case it was the duty of the Government, as representing all of the people, to assist in supplying such a vital need. The Minister with whom we had to deal is a man of large vision and great constructive ability—I refer to the Hon. W. J. Hanna. After careful consideration of the whole subject and with our co-operation, a Bill was framed through which the public spirited citizen of any municipality in Ontario may command the financial assistance required to supply necessary housing accommodation.

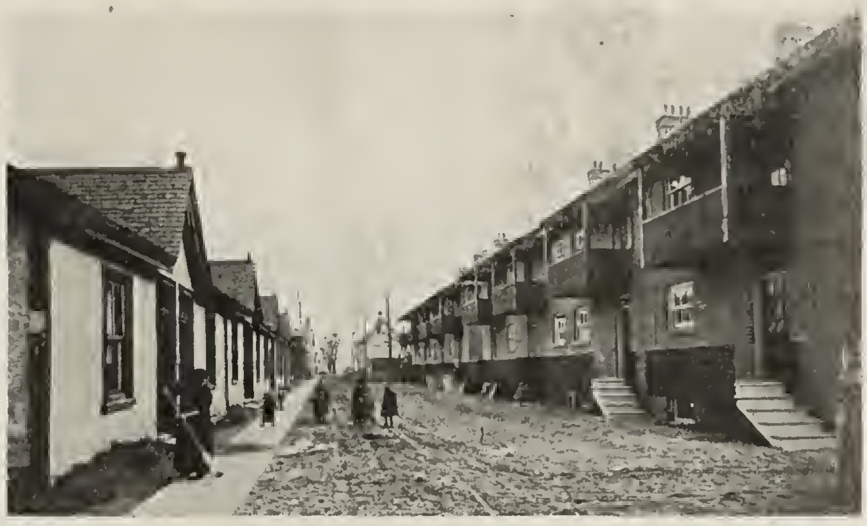
The Bill referred to provides:

1. That a company, the main purpose of which is the building of dwelling houses to be rented at moderate rents, may petition the town or city council to guarantee its securities, thus enabling it to raise the money to carry out such purposes.
2. If satisfied that such additional housing is urgently needed, and that the object of the company is not to make profit, but to be of bona-fide help in supplying such need, the council may, with the assent of the ratepayers, pass a by-law authorizing the giving of such guarantee.
3. The assent of the ratepayers is not necessary if the by-law is approved by the Provincial Board of Health.

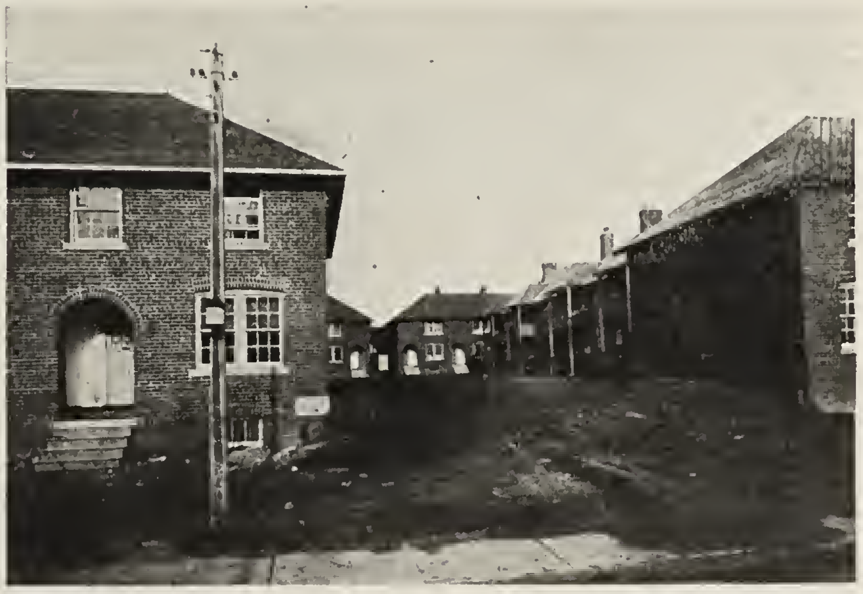




A Row of Small Brick Houses That Form Part of Toronto's Great Housing Plan.

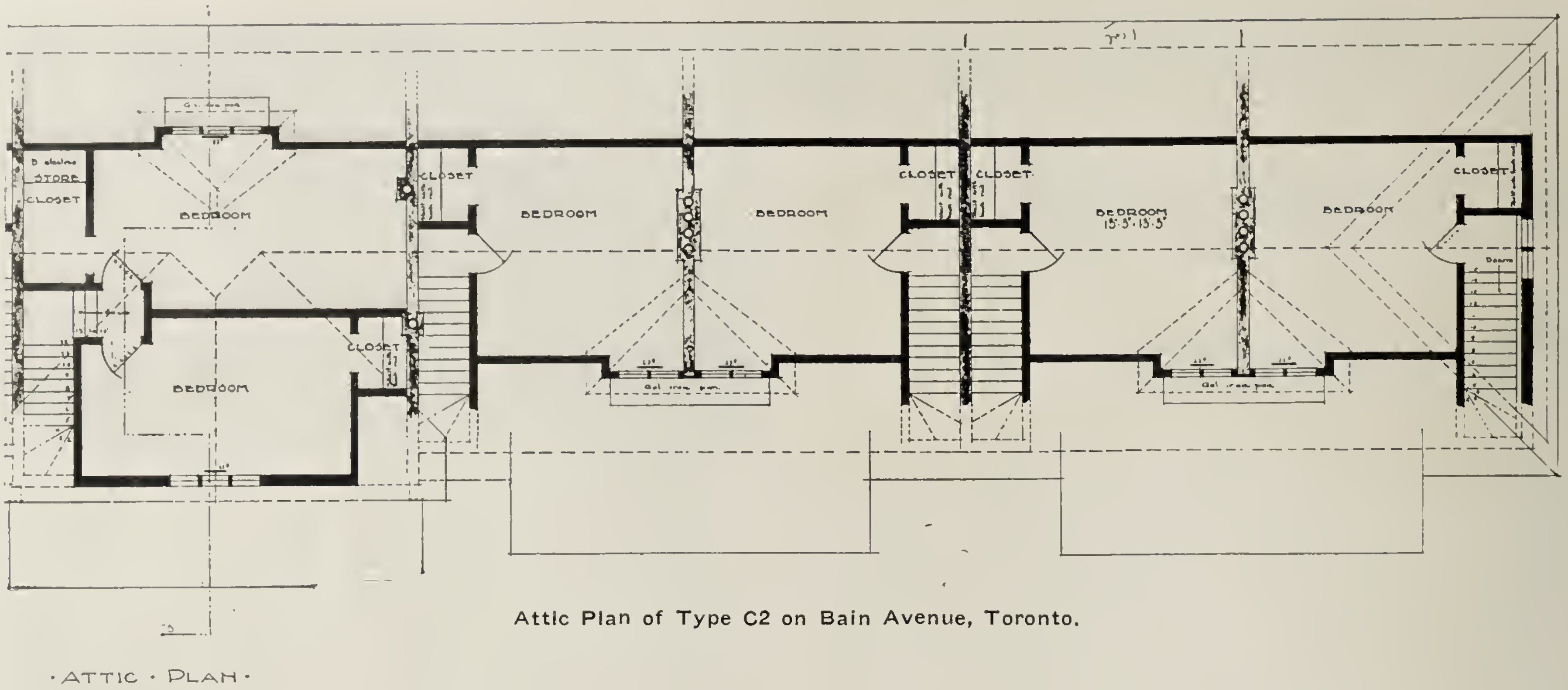


Rear Elevation of the Small "Cottage Flats." Every Family Has a Rear Porch.

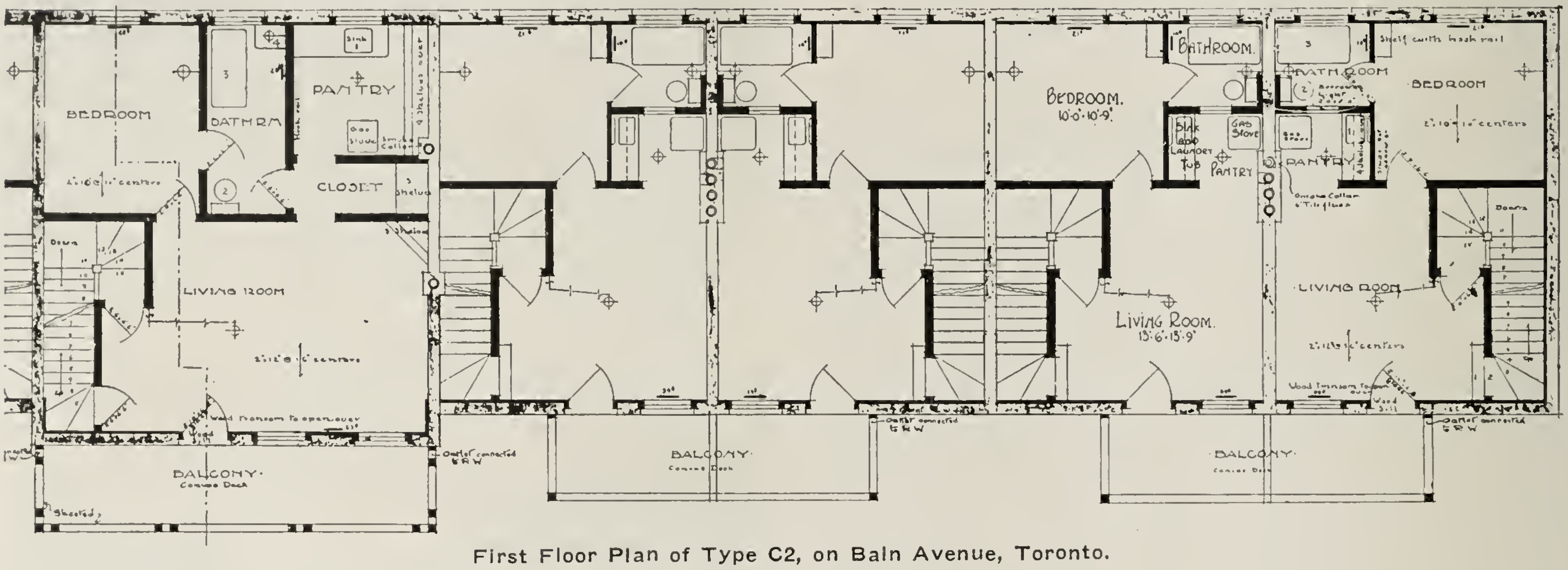


Brick Houses in Spruce Court, Toronto. Typical Model Homes Built Under a Comprehensive Government Aided Philanthropy.

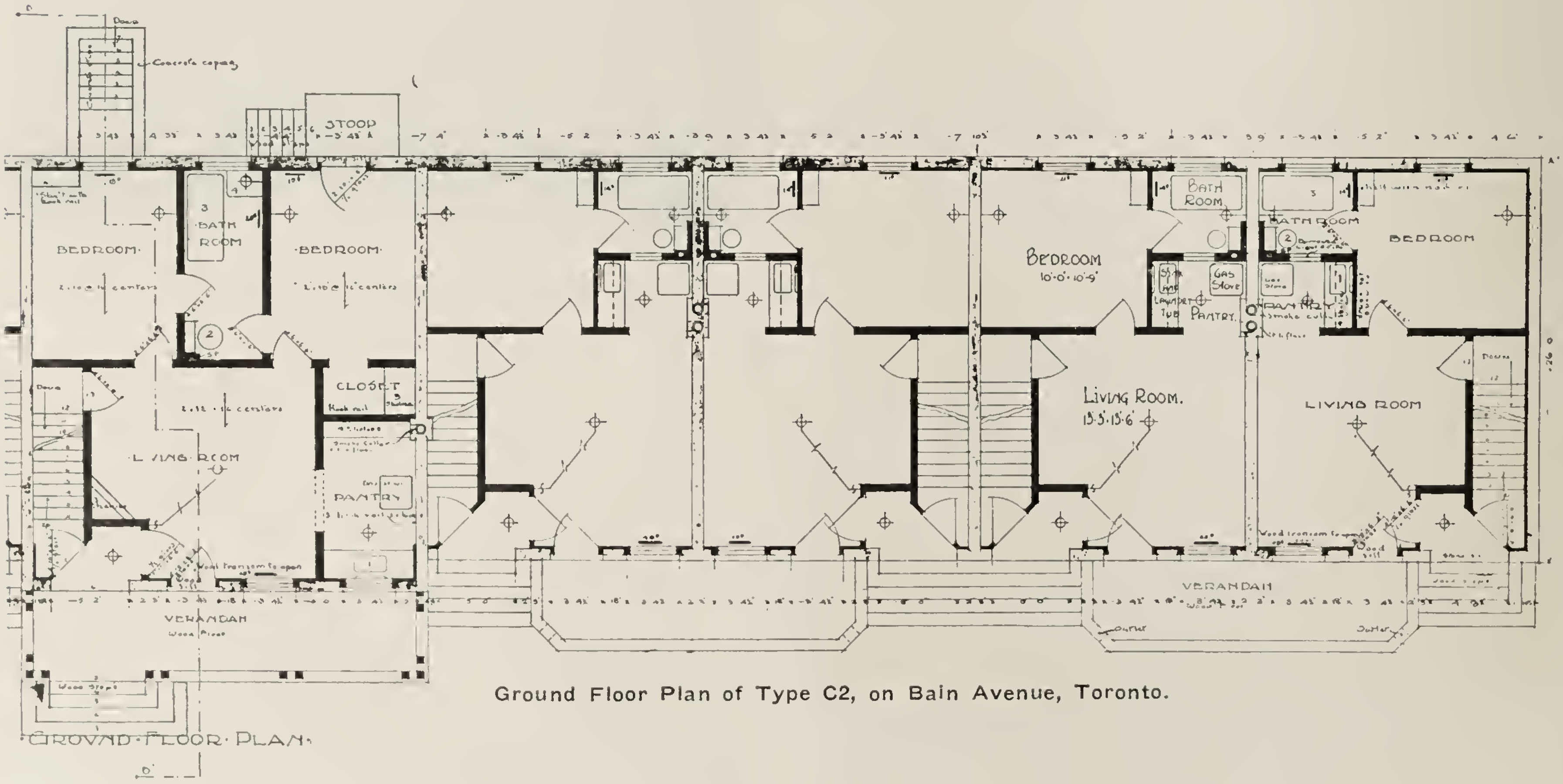
4. The council must approve the location of the land, the general plans of the houses, and the form and terms of the securities to be guaranteed.
5. The total amount of securities guaranteed shall not exceed 85 per cent of the total value of the lands and housing accommodation.
6. The council has the right to appoint one member of the board of directors of the housing company.
7. The books of the housing company shall at all times be opened to inspection by the council.
8. No dividend upon the capital stock of the housing company shall be declared or paid in excess of 6 per cent per annum. Such dividends shall be cumulative.
9. Any net profits received by the company in any year.



Attic Plan of Type C2 on Bain Avenue, Toronto.



First Floor Plan of Type C2, on Bain Avenue, Toronto.



Ground Floor Plan of Type C2, on Bain Avenue, Toronto.

Dining Room in One of the "Cottage Flats."

and not required to pay the 6 per cent dividend referred to, may be expended in acquiring the capital stock of the company.

10. After four years of operation the company shall, if requested by the city council guaranteeing its bonds, take steps by which the city itself shall acquire the stock of the company, paying therefor no greater premium than 10 per cent.

This Bill received the support of the leaders of the Opposition, Mr. Rowell, and was afterward enacted by the unanimous vote of the Ontario Legislature.

The principles underlying this Act which in our judgment seem wise are:

1. Where private initiative fails to provide an adequate supply of a pressing necessity the Government should and will lend its assistance to supply the need.

2. The principle of encouraging the voluntary co-operation of citizens with the Government in the solution of social problems.

3. The desirability of leaving the administration of such enterprise in the hands of those interested.

4. In undertakings, which by their nature, create a value which is the direct result of Government co-operation, such value (after providing for the repayment with interest of the private capital employed) shall belong to and be employed for the benefit of those co-operating. In the case of our housing company the co-operators outside of those supplying the capital are the city, through its guarantee of the bonds, and the occupants of our houses.

In framing this Act it was borne in mind that many persons though willing to assist pecuniarily in furthering the object of our housing company, were not able to do so; others though able, were indifferent or not willing. It was therefore necessary to devise a plan whereby all so disposed might be appealed to for assistance without too much pecuniary sacrifice being called for, and whereby also the municipality might take its proper share of the responsibility involved.

This Tenant is a Cup Winner. His Trophies are in Evidence.

Under the power granted by this Act our company applied to the Toronto City Council for a guarantee of 40-year bonds to the value of $850,000. The matter was fully explained to the aldermen and the council guaranteed the full amount by a vote of 21 to 2. This $850,000 guaranteed by council together with the $150,000 provided by our shareholders forms the first $1,000,000 unit of our building operations. We have already sold $650,000 of these bonds which bear interest at 5 per cent.

A few days later we secured the approval of the Provincial Board of Health so that a vote of the ratepayers was not required and we were enabled to proceed with our plans without delay.

You will see by the above that we are conducting building operations upon a large scale. The reason is that we desire the overhead charges of management, offices, etc., to bear as lightly as possible in the form of rent upon our tenants. It will probably be found that the expenditure of further large sums will prove of equal advantage to the housing company and its tenants.

Living Room in One of the "Cottage Flats."

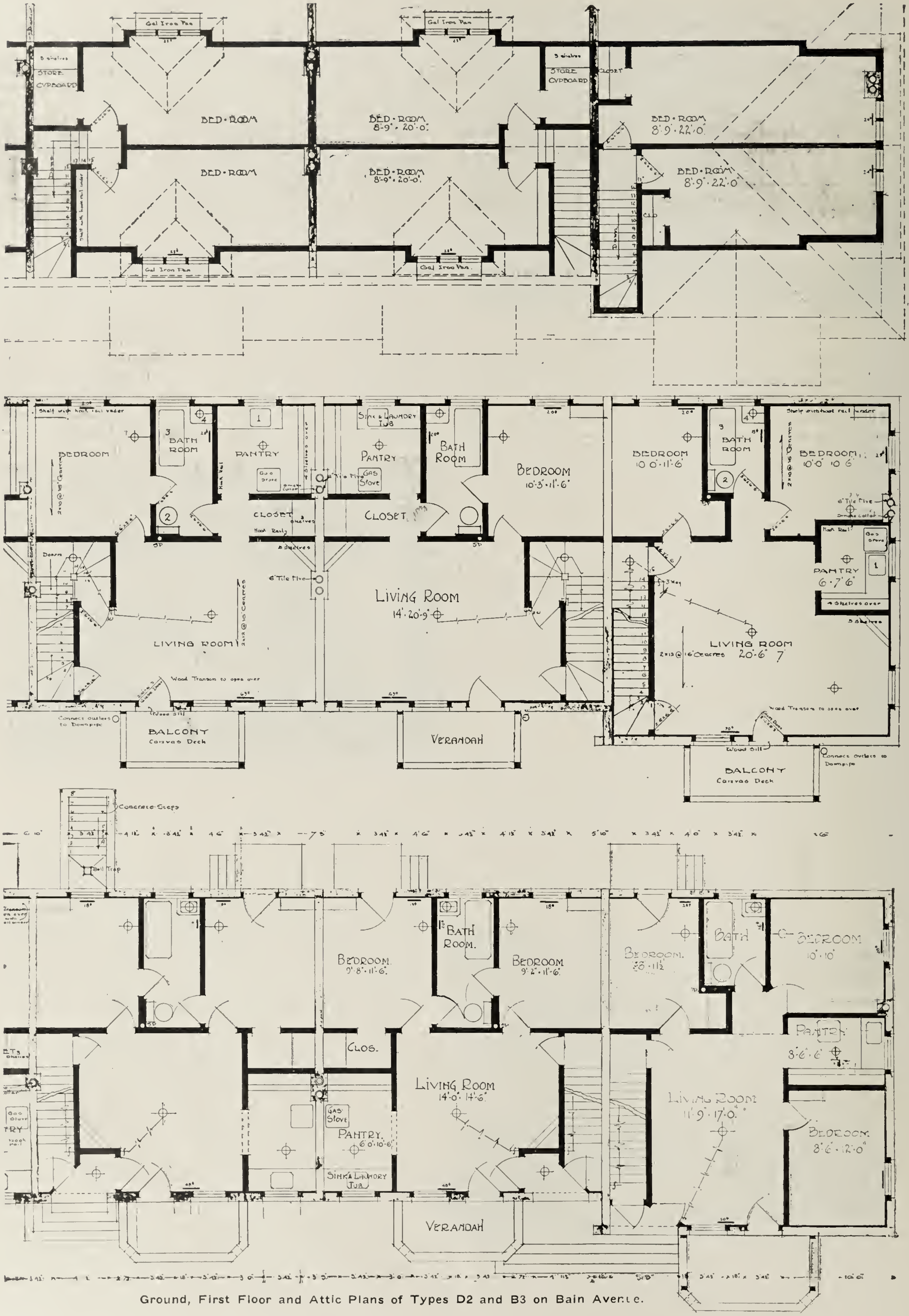
In a young country such as Canada, industrial development and trade expansion call for our entire financial resources. Without the co-operation of the municipalities which are suffering from overcrowding and similar evils, no really effective building development is possible. We do not destroy private initiative or public spirit, but supply these with machinery to make their good will effective.

As before stated the principles underlying the Act are: (1) Private initiative; (2) Government encouragement and guidance; (3) Public co-operation. I believe you will agree with me that this is legislation of a high order. It has already developed public spirit and inspired public service.

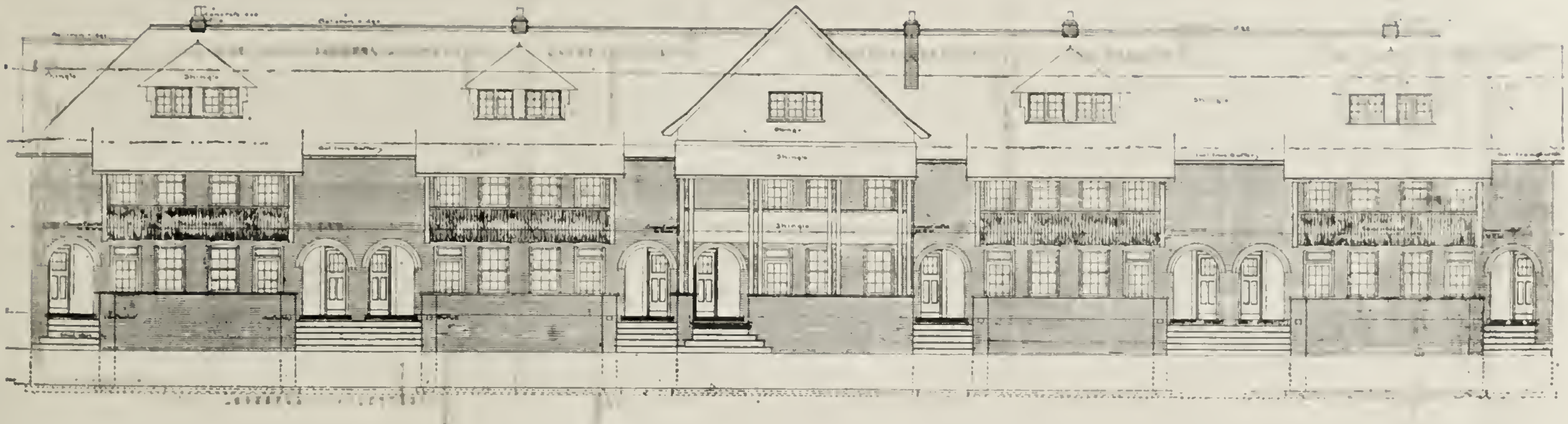
In the development of our plans, we have taken into consideration the elements other than finance, land, labor and materials, that have a bearing upon final cost. Some of these are:

DURABILITY.

In all construction it should be borne in mind that we are building for 40 or 50 years' occupancy. The ordinary jerry-built house deteriorates so rapidly that within 10 or 15 years



Ground, First Floor and Attic Plans of Types D2 and B3 on Bain Avenue.



Front Elevation of Type C2 on Bain Avenue.

it has lost its "respectability," and provides no longer a type of housing with which we would wish to be associated.

ATTRACTIVENESS.

To build so that our houses will never lack tenants is to exercise true economy. During the coming years we hope to see a marked improvement in housing conditions. Let us build so that our houses will still be attractive after 20 years' occupancy and in keeping with the progress we hope to see realized within that period.

TOWN PLANNING.

We may reasonably hope for large economies from the general adoption of good town planning. The aesthetic values of such planning have been over emphasized while the economic gains, present and future, are not yet half appreciated. We earnestly wish for town planners the success their efforts merit. No new districts should be developed without their advice being had.

INDUSTRIAL SUBURBS.

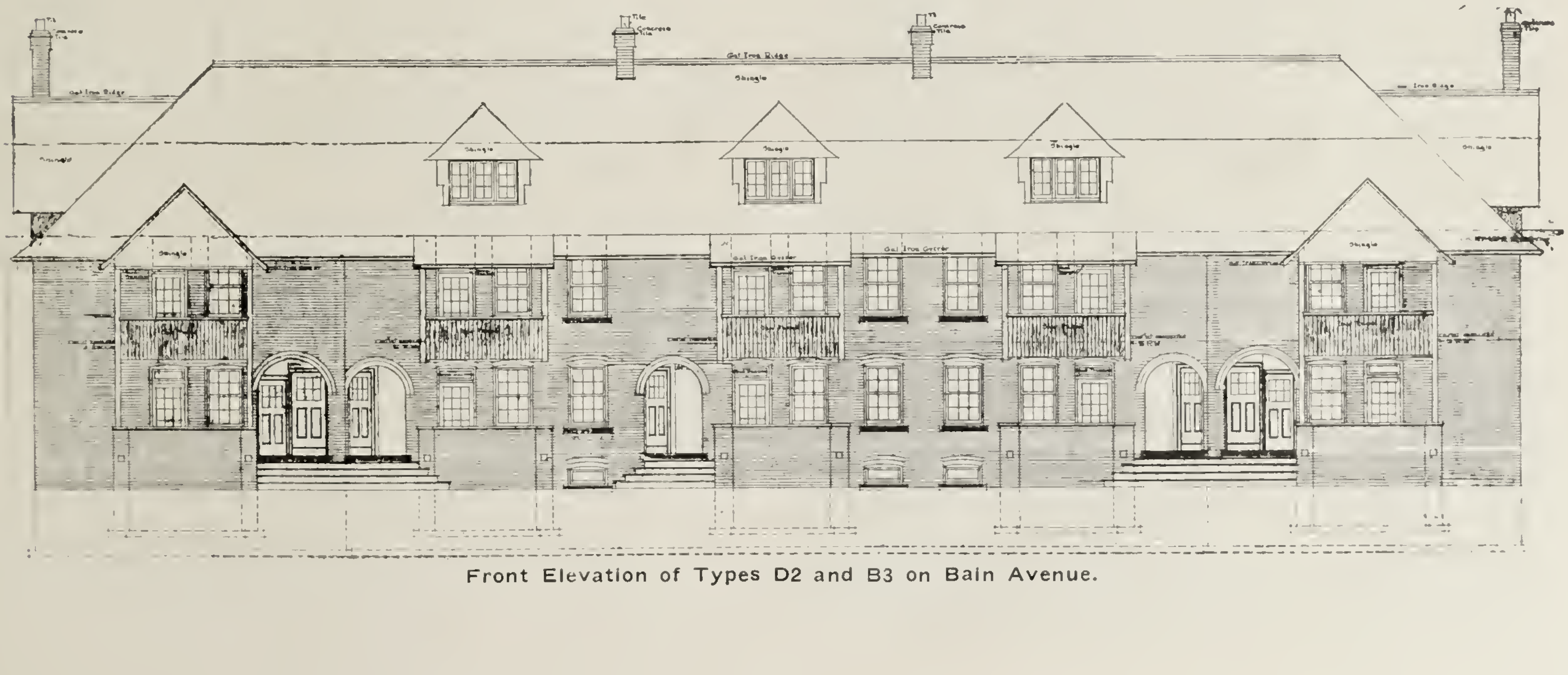
To bring the factories of our large industrial enterprises into a proper relation with the homes of their employes is another method of reducing cost. Suburban industrial developments are to be most highly commended. Not only do they mean a saving in cost of land for all concerned, but they mean more attractive houses for the workers, a saving of 50c a week in car-fare, and, most valuable of all, an hour or possibly even two hours each day added to the time which may be spent at home. Gardening and other healthful recreations are made possible. All of this has money, social and moral value.

HOUSING BY-LAWS.

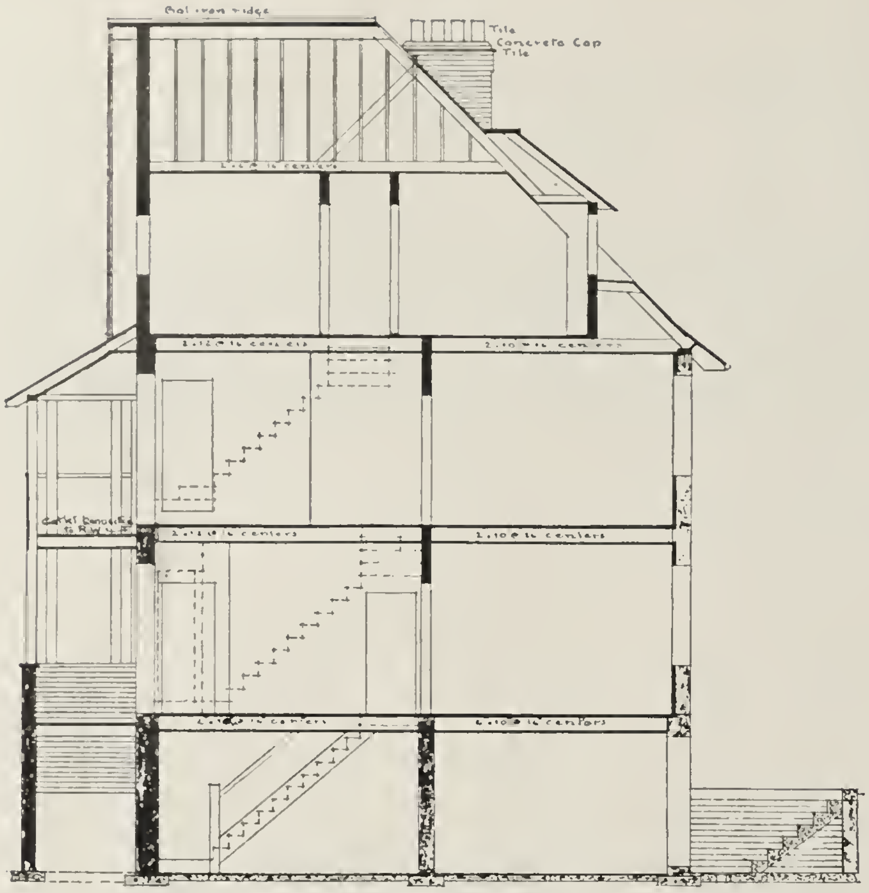
The restrictions of housing by-laws are adding materially to building costs today. A note of warning is not altogether unnecessary. If we, by regulation, increase unnecessarily the cost of new and desirable houses, by just so much do we increase the rental value of existing less desirable houses. A six-roomed house at $25.00 a month is a six-roomed house in Toronto whether the bedrooms contain in floor space 100 square feet or over as required by our existing laws or 80 feet as formerly allowed. I am not arguing for the latter—100 square feet is possibly a desirable minimum for a sleeping chamber, but after all it depends primarily upon its fresh air and bright sunlight for living value and not upon floor space or cubic contents. All who have slept in small rooms well ventilated and large rooms poorly ventilated can speak with knowledge of their relative rest values.

So, too, with the proportion of vacant land to ground floor space. A house to most dwellers in the city is primarily a shelter and its livableness depends upon air and sunshine and sanitary conditions rather than upon the size of the yard. If the yard is ill-kept and surrounded by apartment houses it may contribute little of value to the dwelling. In our Toronto developments we have provided small yards only—simply a place to dry clothes, etc. The ends of the yards have been "moved" to the fronts of the houses and by a combination of these fragmentary yards we provide grass courts in front of the houses where the children find a real play-ground for their mutual enjoyment. As the living rooms of the houses, each with their little veranda, face this court, the mothers are able to keep an eye on the children without being called away from their housework. In developments of this type the Toronto Housing Company have four grass courts, three 80x160, and one 60x140.

In Toronto many of the lots are narrow and deep, the space between the rears of houses being over 160 feet. With a different planning many more desirable houses might be built, thus reducing the cost of land. In one case we bought over 300 feet frontage on each side of a city block. The lots



Front Elevation of Types D2 and B3 on Bain Avenue.



Section of Type C2 on Bain Avenue.

are 125 feet deep and the rears adjoin without a lane between. We are building almost solidly upon the street frontage and reserving two inner grass courts each 90x100. One of these will be used in common by our tenants as a bowling green, the other as a safe playground for the small children, where they may play unmolested by motor cars. This will not reduce the cost of the houses, but it will be the means of giving more for the money, a result equally to be desired.

SUPERINTENDENCE.

Whether the cost of building will be lessened by employing a superintendent of works and competent foreman and laborers is a question upon which we are not, as yet, clear. That the houses would be better built is possible; I am not sure that the cost would be lessened. Up to the present our own development has been by contracting. As we are still in the initial stages of our building, we may be able to give comparative results at a later conference. Meanwhile, we are anxious to receive information derived from actual experience under both plans of operation.

HOW TO GET CHEAP HOUSES.

This subject is one that will continue to confront us for many years and it is well to say that it is being studied and worked out in several sections. Some of the sections into which the subject naturally falls are:

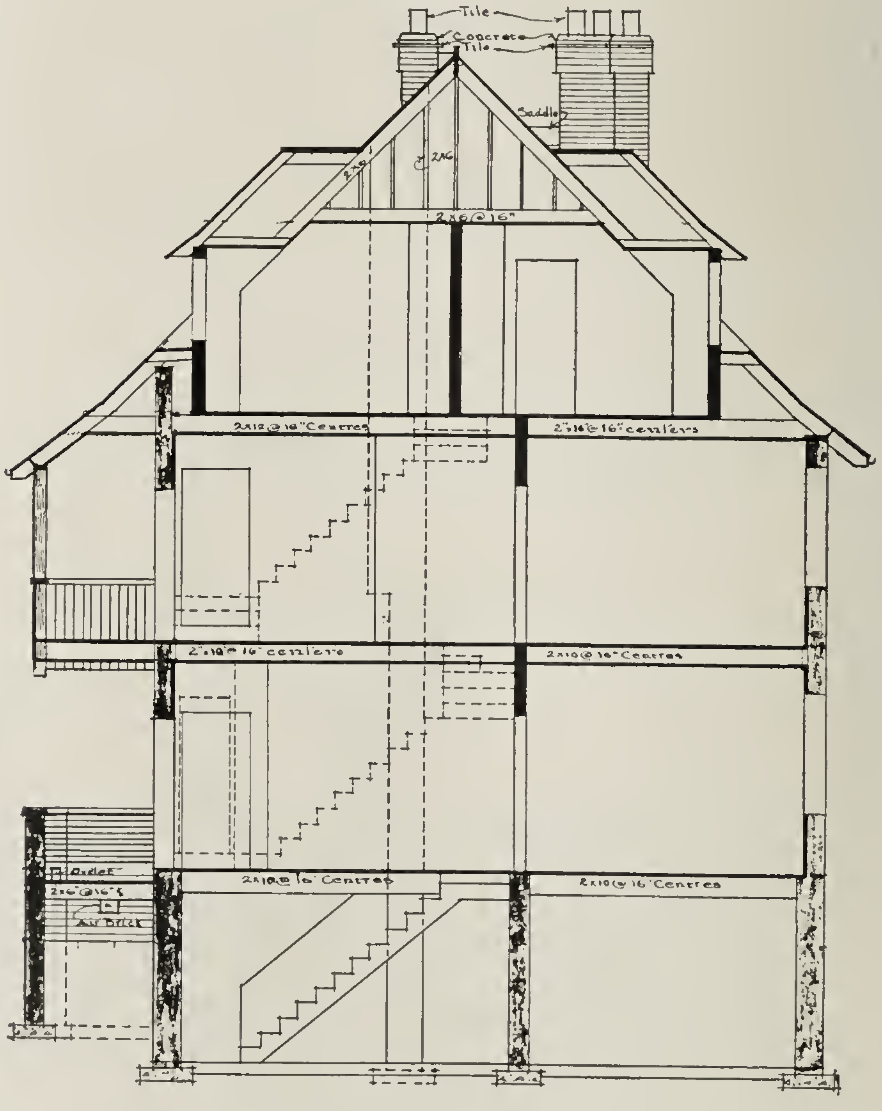
1. *Ground Plans.*—Maximum desirable use of land. Economical planning of sub-division. Relative saving in blocks of different housing units. Garden allotments, grass courts and squares. Garden suburbs.
2. *Indoor Plans.*—Large living room and small kitchen, vs. large kitchen and small parlor. Cost and desirability of basement. Size and location of bath, closet and laundry tub.
3. *Materials.*—Durability and up-keep of stucco. Concrete vs. bricks for basements. Tiles for partitions, walls, etc.
4. *Construction Details.*—Economic size in lumber. Standardization of doors and windows. Effect of joists left exposed without ceiling. Roofs: flat vs. gable; shingles vs. slate, tiles or asphalt board.
5. *Finishing Details.*—Paint vs. stain. Hard plaster vs. sand and lime plaster. Wall paper vs. kalsomine or other similar finish. Desirable forms of trim, door and window frames and stairways. Mantels.
6. *Fittings.*—Minimum larder, dresser and clothes closet equipment. Locks on all doors, vs. locks on outside doors with bolts and latches for other doors.
7. *Heating.*—Central heating plants, hot air, hot water, steam, kitchen ranges, fire-places.
8. *Ventilation, Refrigeration.*
9. *Management.*—Building by contract vs. purchasing materials and engaging superintendent of works. Basis of rentals. Provision for up-keep whether by tenant or owner. Method of rent collection.
10. *Method of Finance.*—Co-partnership. Government co-operation. Municipal guarantee. Private shareholders. Plans for purchase by installment. Plans and photographs of new buildings, showing ground arrangement, with actual costs where possible of masonry, carpentry, plumbing, heating, etc. Management of houses after occupancy.

Some of these details may appear to be unimportant, but unnecessary expense is doubtless incurred owing to lack of information upon them.

In conclusion may I be permitted to add a few words upon the general subject of housing.

A clear view of our aim must precede any permanently valuable plan of operation. It is the reform of existing conditions we seek, a solution, not a palliation, of the housing problem. To build houses for those who need them is good, to make it possible for people to build and own their own houses is better. Let us not lose sight of the real object of our effort, whether we are engaged in securing legislative reforms, assisting in the enforcement of sanitary laws or occupied in the construction of cheap houses.

The more we are compelled to seek cheapness in order to supply houses at a rental the tenants can afford, the more we should seek the cause lying hidden behind the existing need. The demand for cheapness below a certain level must mean that something is wrong with our social or industrial machinery. If we build down to a level which is not in itself desirable and productive of lasting advantage, we will not



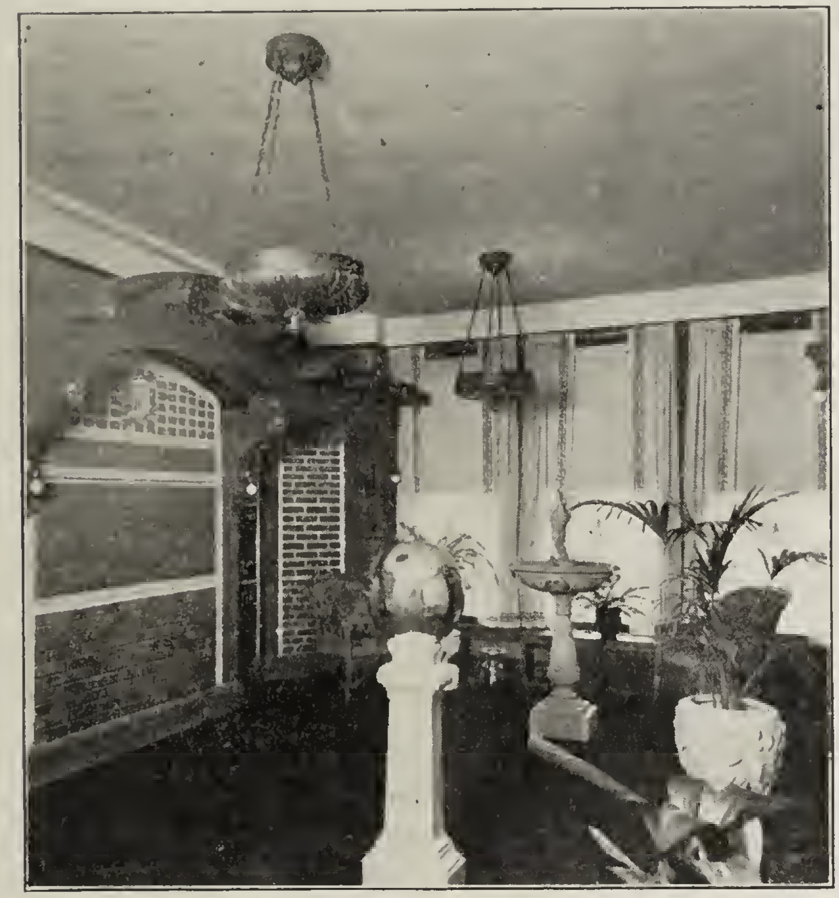
SECTION · B·D

Section of Types D2 and B3 on Bain Avenue.

be using our energy wisely. To build below a level upon which our people should live may mean the establishing or perpetuating of a wrong social condition and doing little to supply a remedy. It is the remedy we seek. This at least is sure, that for every dollar spent in housing of a type not permanently desirable, two dollars should be spent by the city, State or Federal Government or by all combined, in seeking, finding and remedying the causes that render such lower level of living necessary.

Housing is a communal responsibility. Water, sewage and other public services are not more necessary to our citizens than are decent houses to live in. If individual initiative fails to supply these, it is the duty of the city or State to step in and supply the need. Our civic well-being, to say nothing of our national existence, is directly involved. I do not believe in building down to a level of which we should be ashamed as a people. Let us build on a plane which we hope may become the minimum at a near future. Let us leave to the charitable, to philanthropists and to social reformers the task of accelerating that future. If we do this we shall at least know that we have done nothing to postpone a greater degree of social justice and nothing to blind the State from a clearer view of its responsibility toward a large number of its citizens.

A Brick Exhibit Room in Detroit, Mich.



AN EXCEEDINGLY interesting display room in which face brick and terra cotta are shown to advantage, is that which was recently completed by the Dresden Brick Company in the Hammond Building, at Detroit, Mich.

In the illustration which shows the doorway, the cornice and base is of terra cotta in a granite color, made by the Conkling-Armstrong Terra Cotta Company to match a soldier course of brick. The door jambs are of a darker shade of the same brick and the panels nearest to the door are of varying shades in the same texture.

Prominent in this room is the "gazing globe," a spherical mirror surmounting a pedestal of gray terra cotta. Near this is seen a Teco green vase containing a palm. The harmonious color effect is made perfect by the brown axminster carpet which covers the floor.

In the other illustration the fountain shown in the middle distance is of green terra cotta manufactured by the Galloway Terra Cotta Company and the vase at the right is of the same color terra cotta, manufactured at the same factory.

This fountain is "practical" and the play of the limpid water is one of the fascinating features of this exhibit room de luxe.

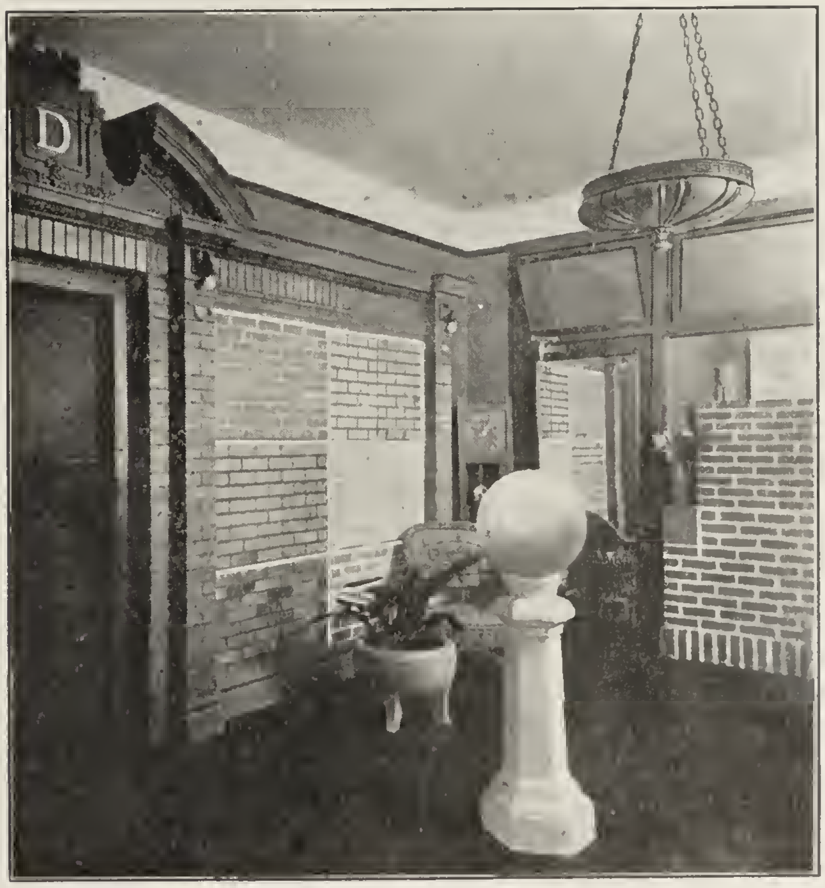
The cornice is of wood stained brown and gives a pergola effect. Window shades are of cream tan and the curtains are cream net with panels that contain a monogram design.

The draperies are of stenciled scrim to match and the indirect lighting system is used, the bowls being bronze finish and supported by brass chains.

The Dresden Brick Company was organized in January, 1913, and is under the management of the secretary and treasurer, Ralph Spencer, a gentleman who has had a wide experience in both the selling and manufacturing ends of the face brick business.

The Dresden Brick Company, in addition to a strong and comprehensive line of smooth face brick, specializes in the famous "Velvet" brick, manufactured by the Warren B. Ferris Company of Columbus, Ohio. Many of the panels shown in the illustrations are of blended shades of this truly beautiful brick, and many examples of Detroit's best brickwork are tributes to the manufacturing genius of the Ferris plant combined with the sales ability of Ralph Spencer.

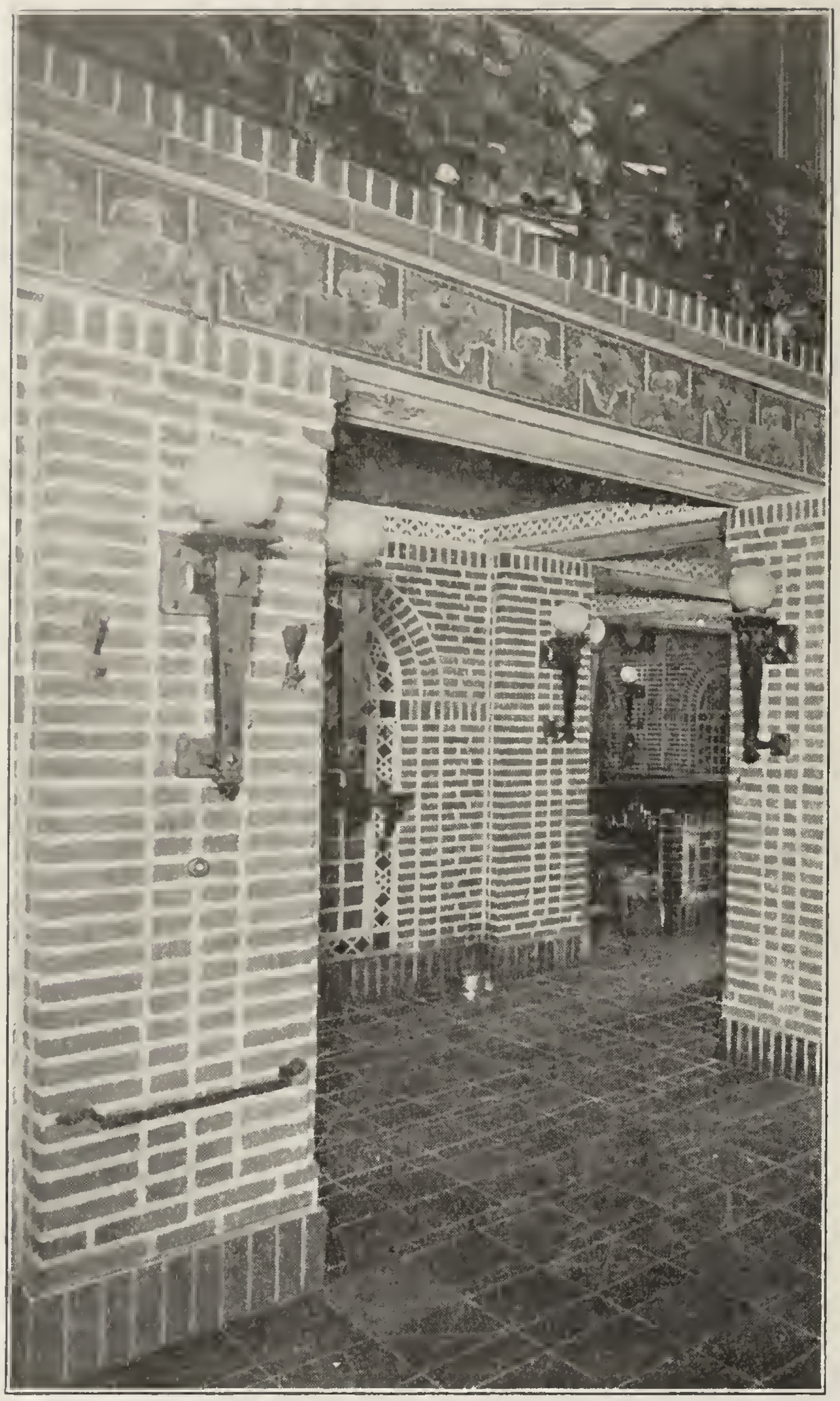
A most satisfactory trade has been built up, also, in the Galloway Company's terra cotta garden appurtenances, and in the Conkling-Armstrong Company's architectural terra-cotta. Altogether, the Dresden Brick Company is one of the leaders in Detroit's high class building field.



The Germania Cafe in Seattle

Where the Architect and Builder Colabored and Have Made a Remarkable Example of the New Use for Burned Clay

By J. H. Longfellow



"The Floor Is laid in 9 x 9 Rovaque Quarries Showing a Wide Variation In Shade."

FEW better examples of the adaptability of burned clay to interior decoration can be found than are seen in Seattle, Wash., in the Germania Cafe. Here, brick and tile have been used with rare judgment, and it needs but a glance at the illustrations to gather some idea of the beauty of this work.

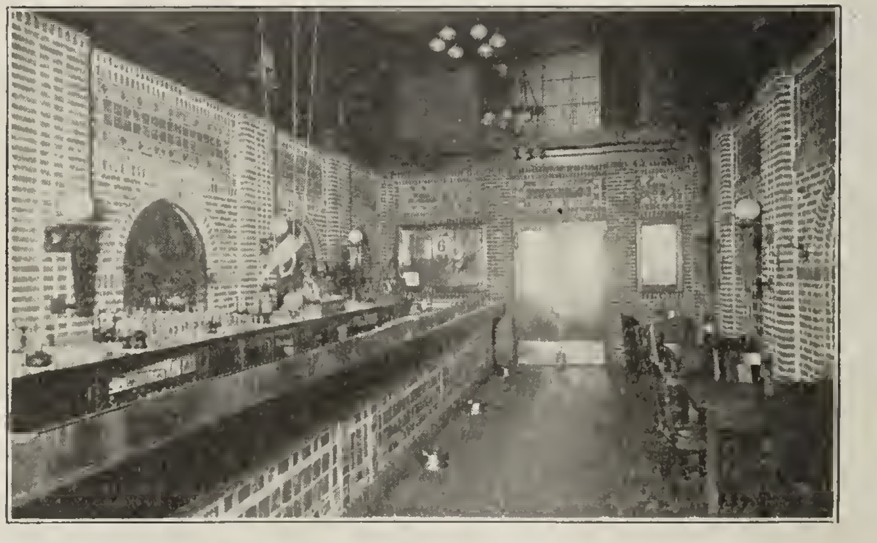
To the architect, Clayton D. Wilson, and the contractor, William W. Kellogg, the clayworking world is indebted for the splendid design and craftsmanlike workmanship. And a word of praise must also be given William Bloch, who, as owner, expressed a willingness to plunge into an almost unknown sea of ornament—ornament that was to be a permanent part of his property, and a constant source of satisfaction—or the reverse.

That the former is the case, goes without saying. Not only has the Germania Cafe become one of the sights of Seattle, but architects and other lovers of the beautiful are making pilgrimages to this shrine of burned clay. It has struck a note of rare beauty and is above criticism.

Unfortunately it is impossible to reproduce in black and white engravings, any of the color tones of this work, and a description is necessary. The floors of both bar and cafe are laid in 9 x 9 Rovaque quarries, showing a wide variation of shades, ranging from the bright red of the imported Welch quarries to soft grays, browns and purples. Borders are made about each room, by using various sizes of the same material, but giving a change in texture, rather than a decided contrast in color. The joints are large, and made of coarse sand and cement, warmed by the addition of yellow ochre.

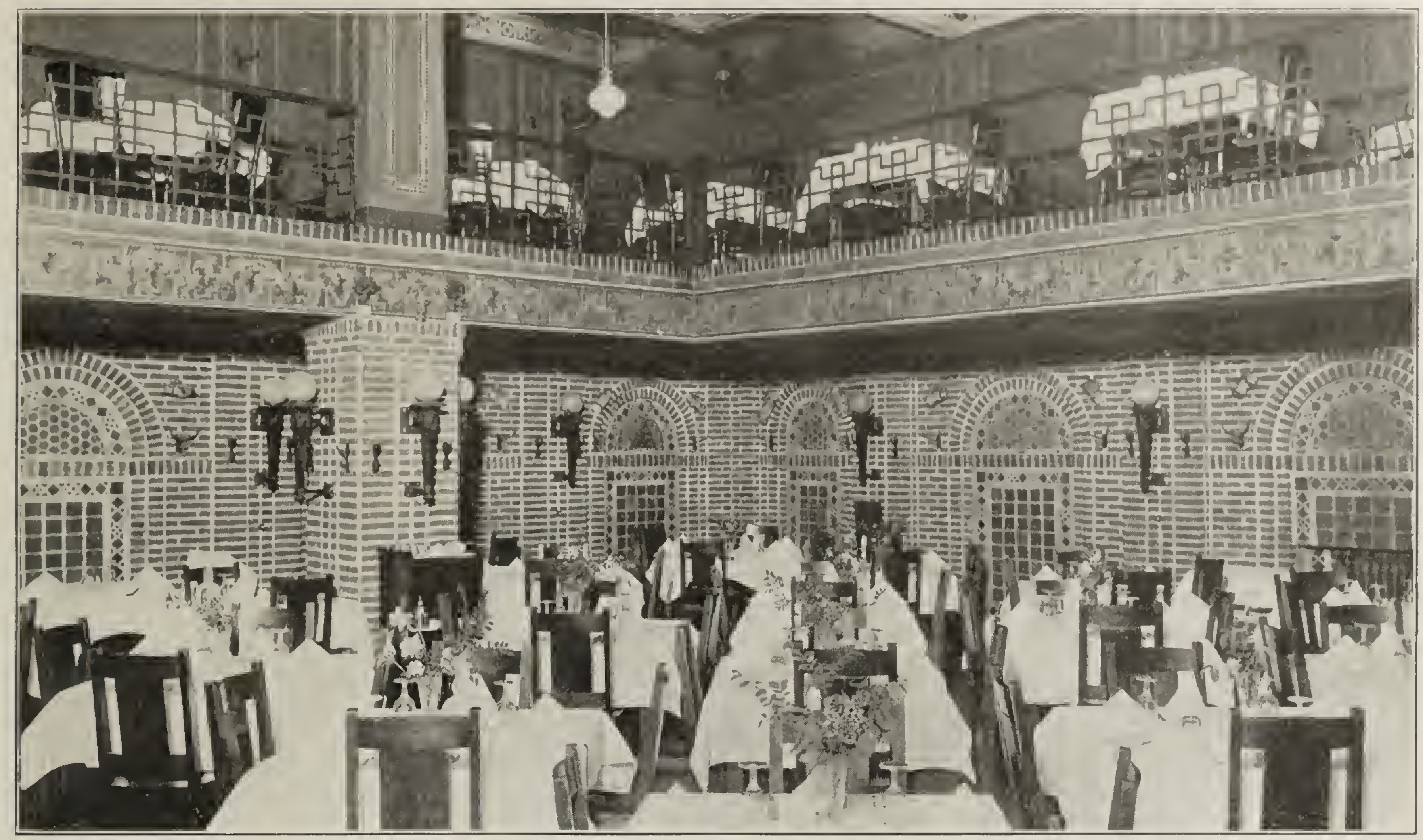
The base is made of very dark and highly vitrified paving brick, set in a soldier course and with black mortar. The brick walls are laid in Oriental brick, a face-brick that is, approximately, 2 in. x 3¾ in. x 8½ in., and with a texture that is neither perpendicular nor horizontal, being somewhat fan-shaped. The colors are in many variations of reds, wines, browns and purples. These brick are laid with a seven-eighths to one inch joint, the mortar being very coarse and yellow-gray in tone. The joints are rough-cut, flush with the face of the brick, and are "struck-up," so giving the same direction to the joint texture, as appears on the surface of the brick.

The paneled arches in the cafe and the square panels in the bar are made of the famous Moravian tile, in various designs, sizes and colorings; the border of each panel is made up of glazed and half-glazed tile in bright blues, greens and yellows, and a combination of these colors with the reds of the brick. The extreme outer and inner members of the border are of deep buffs and browns, in natural clay colors and texture. The fields of the various panels are squares and hexagons of various shades of unglazed reds.



"These Brick are Laid with a Seven-Eighths to One-Inch Joint, the Mortar Being Very Coarse and Yellow Gray in Tine."

With the dark oak woodwork and rich coloring of the wall paintings, the place has all the wealth of color and richness of tone of a beautiful Oriental rug—forming a most delightful setting for all the good cheer and good fellowship attendent upon the usual German meal—the

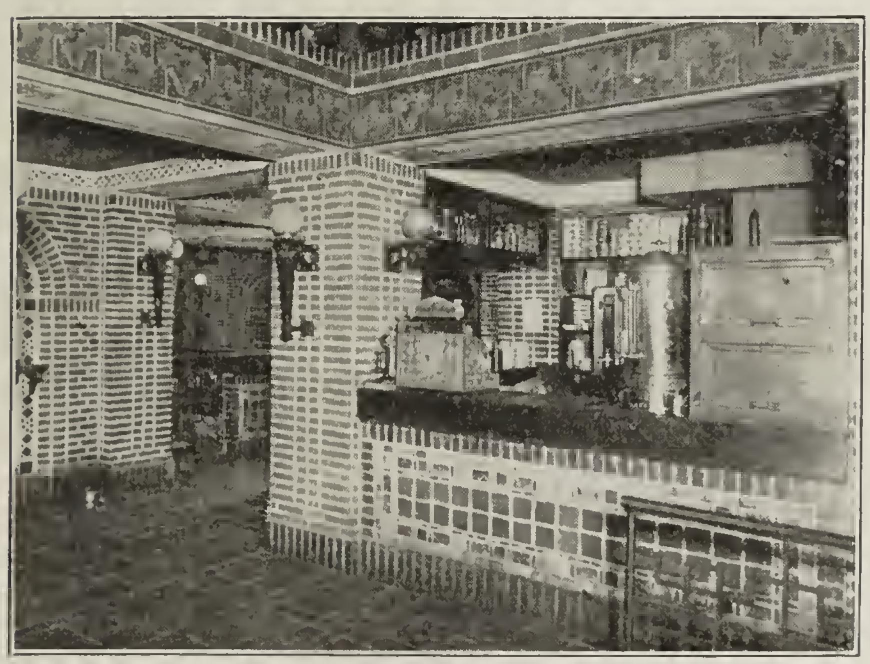


"Interior Work that Combines the Luxuriousness of the Oriental Color with the 'Jugendstyle' of the Later Germany."

banter, laughter and sociability that are but seldom found in the average cafe.

The assembling of so many different kinds of burned clay into this unique and wonderfully successful example of interior decorative work, indicates the touch of a man who not only understands and believes in clay, but who has a loving-kindness for it. Working in a field that is altogether new—for the combination of rough texture, wide jointing, vari-colored brick and tile is not a following after Old World precedents, but a new-born art—and American.

True it is that tile work of surpassing beauty decorates the mosques at Teheran, that brickwork in a score of patterns is found in the Columbier at Boos, and in Germany, wonderful examples of burned clay ornamentation and construction. But it remained to the new, virile race that has arisen from America's great "melting pot" to develop this new form of interior work, that combines the luxuriousness of the Oriental color with the "jugend-style" of the later Germany.



"The Panels are Made of the Famous Moravian Tile, Glazed and Half-Glazed, in Blues, Green and Yellows."

The inner feeling of this work is shown in the mortar joint, and the success with which this is used is the more remarkable, when it is understood that practically no thought was given to this part of the construction of a building, or to any kind of brickwork, up to not more than ten years ago. Of course, there may have been instances of this kind, but they were but the rumblings of a distant thunder, as compared to the shower of good work that is being done today, because of the better understanding of the mortar joint.

Here it will be seen that a relative scale of only slightly less than one to two is used, the mortar being about 30 per cent of the wall surface. The slightest mistake in color (and this color designed to blend all other colors)—the smallest inconsistency in texture, and the whole would have been a failure.

In ordinary designing, the artist has but to take from his shelf the bound volumes that contain the best architectural examples the world has seen. These, dissected and "detailed" give him a basis upon which to build his own idea—yet his training bids him keep close to conventional forms—lest his effort be a freakish disappointment.

The designer of this work had no reference library to delve into—no treasury of previous successes in the same line to cull from. So he created his idea and has added his name to the list of those who have led their fellow men into the Realm of Beauty.

And with him, in his leadership, is the man who laid the work, whose every touch shows that he too, understood, believed in and had an affection for clay. Otherwise, the design must have failed, the spirit have been weakened and the harmony of color and light and texture made discordant.

Where Mr. Wilson was the composer, Mr. Kellogg was certainly the first violin. Together they have wrought a wonder-child in burned clay.

Electric Battery Lower Yard

The Electromobile with a 1,750 lb. Load.

EVERY clayworker will agree with the statement that the “wheelers” are the most troublesome of his employes. Some day it will be possible, by means of mechanical devices, to do away with these men who are on the borderline between skilled and unskilled labor. A great step towards this has been taken by the introduction of the Electromobile and industrial truck, propelled by a storage battery and capable of transporting a load of 2,000 lbs.—the equivalent of 633 brick, estimated at six pounds each.

By “transporting” is meant the carrying of these brick over an ordinary dirt road, such as is the rule in brick plants and doing better than this when the runways are paved with brick.

Where the runways are properly paved, it is possible for one of these trucks, while carrying its own load of 2,000 lbs., to pull one or more cars hooked on behind it and carrying from 4,000 to 8,000 lbs.

To define this better and taking a brick weighing six pounds, we have the electromobile carrying 633 of these brick and dragging from 1,266 to 2,500 piled on cars which are not self-propelling.

The power truck requires one man to attend to steering and to control its power. Compare this to the string of “wheelers” required to transport the same amount of brick from the kilns to the cars or stock sheds. We all know that, depending upon the class of brick being made and the style of barrow, that “wheelers” carry from 60 to 90 brick and as a consequence one trip made by the electromobile without dragging any cars behind it, would equal from seven to ten men pushing wheelbarrows. Where the cars could be hooked on behind, as is the case when the yard is properly paved, one of these electromobiles would equal from 21 to 30 men.

Banish the trouble with the “wheel gang.”

Some years ago the Electromobile Company which, by the way, has its offices in St. Louis, Mo., began manufacturing these industrial electric trucks for use in and about railroad stations and steamship docks, etc. “Brick and Clay Record” readers will doubtless remember seeing this truck heavily loaded with trunks going at a fair speed over the paved platforms of big terminals.

To bring the same system into the clay plant was simple. The only thing which had to be overcome was the tendency on the part of the average clayworker to have about as badly paved aisles and roads about his plant as could be found anywhere in the country. Here again the old adage about the shoemaker’s children being unshod, comes into play. Brick manufacturers seldom pave the roads and paths which they themselves use oftenest.

This was accomplished without a great deal of difficulty and it was found that by supplying a transformer with each truck any clay plant which used electricity either for motor power or lighting, could recharge these storage batteries without very much cost and without having to take them from the plant.

The trucks have ample capacity for a full day’s work on one charge with a single battery and these batteries are

Carrying Green Brick to the Drying Floor.

Storage Trucks Brick Cost

This Car Is Doing the Work of Five Wheelers.

operated in series which does away with any possibility of cells in one-half of the battery being out of balance with those in the other half as is often the case with batteries operated in series-multiple.

Wherever sufficient work is offered, these electromobile trucks will by a saving in labor, repay their cost in less than one year. The cost of up-keep is small and when charged off, still leaves a very large saving, in some instances only slightly less than 100 per cent upon the cost and on others the saving is so large as to be astonishing.

Ordinary labor can operate these trucks upon short instruction. Grades are no bar to their operation and through the efficient construction of electromobile trucks, 30 per cent grades are easily negotiated.

The simple act of raising the foot from the pedal disconnects the current and sets the brake. This stops the brake, and, at the same time, locks the foot pedal so that the truck cannot be again started at the speed stopped, by again stepping on the pedal. In other words, to release the pedal controller the handle must be brought back to the "off" or neutral position.

The speed may be controlled by increasing or decreasing the pressure of the foot on the foot pedal and this leaves the operator's hands entirely free to work with the levers controlling the direction of the truck.

Three hundred 6 lb. Fire Brick Being "Wheeled" by One Man.

Being located in St. Louis, the "show me" city of the "show me" state, the Electromobile Company believes that a little proof is worth more than several pages of claims and submits a letter signed by Lemon Parker of the Parker-Russell Mining and Manufacturing Company of St. Louis. This letter reads as follows:

Electromobile Co.,
300 Broadway, St. Louis Mo.

Gentlemen:

Answering your inquiry, we desire to state we are very much pleased with results obtained through the use of electrically propelled warehouse trucks. We formerly used, and still use to a limited extent, wheelbarrows for setting and emptying kilns and loading cars. Fifty per cent of our work is of large and complicated shapes, requiring slow drying and careful handling. We find the truck does the handling of the material with a saving of costs of at least 15c per ton for this and other class products. Especially useful in long hauls and stand abuse remarkably well. We also find the truck will deliver goods at 483 feet for less money than a barrow at 285 feet, both barrow and truck being loaded and unloaded by hand at the start and finish of the trip. I am yet unable to report the effect of wear and tear on the costs.

Very truly yours,
THE PARKER-RUSSELL M. &. M. Co.,
(Signed) Lemon Parker.

The illustrations which accompany this article were made on the Parker-Russell plant and "Brick and Clay Record" confidently offers this improvement in brickyard appliances to its readers.

Economy Paved

Linwood Avenue, Cleveland, Ohio. Laid in 1905 and Has Not Required a Single Cent for Repairs Due to Wear and Tear.

THIS Paper was delivered by Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association, before the First Canadian and International Good Roads Congress, held in Montreal, P. Q., May 18-23, 1914.

WHAT is the economy of a brick road? By what shall it be measured? Shall it be measured by comparison with other roads or with roads built of other materials, or shall it be reckoned upon its own merits separate and apart from any comparison?

Comparisons are said to be odious and are, therefore, interpreted as coming within a class of criticism, knocking and fault finding that to some seem objectionable.

I sometimes think that the relative merit of paving material ought to be brought out by the sharpest kind of contrast. Unquestionably in the discussion of pavements and their worth, had they heretofore been considered in such meetings as this and through the columns of papers that are devoted to road and street building upon their relative worth, the public would by this time have been saved thousands upon thousands of dollars. Much of the money that has been wasted in experiments would have been saved by the force and influence of a discriminating reason and sound judgment.

If a paving material possesses worth, the time has come when the public should know it. If a paving material is unworthy in any way, the truth is worth more to the public now than a season of repenting in sackcloth and ashes.

The public not only suffers a loss on account of the truth being withheld but suffers as great a loss perhaps on account of the extraordinary influence that is brought to bear by the agents and salesmen interested in effecting the use of their material upon a road for which it has no adaptation whatever, regardless of the fact that it may have its logical and proper place as a road building material. A road built of the material may answer very well for a lighter or infrequent traffic, which will not answer at all for heavier traffic.

It is likewise true that an unnecessary expense is sometimes incurred because the enthusiasm, influence and persistence of a salesman has effected the use of a road material that was much beyond its economical requirements.

There is involved in the economy of a road:

Its first cost.

Its use.

Its up-keep.

These elements of economy bear a close and distinct relation to each other. Each must sustain a harmony of relationship with all combined.

The cost, therefore, must be commensurate with its use and its use must be sufficient to justify its up-keep. Its up-keep must be within bounds justifying its maintenance.

There are other elements in the matter of road economy that must be considered. The effect of the road itself upon abutting property, whether detrimental or injurious. The effect upon its users in a way that pertains to their comfort and pleasure.

Whether or not the time has come when the official charged with responsibility shall assert his professional judgment; whether the time has come when data that ought to constitute the basis of that judgment will be supplied and used both as to the grade quality of the im-

A Vitrified Brick Country Roadway

in Brick Roads

The Cleveland-Akron Road. Brick Manufacturers and Contractors Co-operated to Make This Road One of the Best in America.

NO better answer could be given to the advocates of concrete and other so-called permanent pavements, than is given in the illustrations. This is no "Wayne County Road" proposition—these pavements have been down for years and have cost nothing for repairs.

provement and the uses to which it may be subjected, is doubtless a question, because neither is done.

Whether all pavements that are offered to the public are established in their proper economical place or not, is exceedingly doubtful.

Aside from quality, aside from cost and maintenance, local supply of that which may be used is necessarily a matter to be considered and a feature that must affect very seriously the economy of any road improvements. Good judgment, therefore, will often select a road material by the weight of such consideration that otherwise would not be chosen.

on the Cleveland-Akron Brick Route.

The abstract actual cost, use and maintenance cannot be applied rigidly in all cases. The economy of any road material cannot and must not be judged alone. It must be understood that it is affected by the manner and method by which that material is used in the construction of the road. But the reasonable maximum worth which is only reached by the manner and method of construction may be and should be assumed, for the reason that there is no possible excuse for constructing a road out of any material that is at all worthy of consideration in any way except that way which will render a service approaching a maximum of its possibilities. We cannot fairly approach the subject of economy of any road material except on such assumption and we will not deal with our special subject of brick road economy except in this manner.

It will, therefore, be necessary to understand something of what is required in manner and method of construction in order to properly understand its cost.

Cost of construction and cost of repair and all else is not the full measure of economy. But the greatest element affecting the economy of any road is, strange to say, the very one that is least taken into account, and that is its out of repair condition. That road which calls for the most frequent repairs is the road that is most likely to be out of repair and it is the road that, in the sum of lapses of time in which it is out of repair, aggregates a total detraction from the road's worth which by the lesser load hauled, the broken spring, the injured horse, the extra wear and tear of the vehicle, if converted into dollars, would often equal, in a short period of time, the entire original cost of the improvement.

I would impress and emphasize this feature of road economics. When a road is out of repair your road investment is bearing no interest. The road as a whole is only as good as its worst portion, even the rule of averages will not apply. On the other hand, by inverse ratio the road approaches its maximum worth as repairs are eliminated. The road, therefore, from which repairs are practically eliminated, is the real economic road, provided only that the traffic passing over it meets in a reasonable toll charge the interest on its cost.

This leads to the proper differentiation as to the choice of the road and the amount of its cost. The expenditure for any road is justified so long as the amount of tonnage passing over it will aggregate a toll equal to a reasonable interest charge thereon. To the extent that it exceeds such a sum, it represents a profit to the user. I may inject

Mentor Avenue, Cleveland, Ohio. This Pavement Was Laid 13 Years Ago and Is as Perfect Today as It Was When Accepted by the City. Nothing Has Been Spent Upon It For Repairs.

that in both Canada and the United States poor roads exact a larger toll than good ones should or will if we ever reach a time when our roads are intelligently built.

This continued cry for maintenance is all right so long as it is made in good faith, but the trouble lies in the fact that behind much of it stands the father of the suggestion whose interest urges the building of a road that will need continued repair.

With a just appreciation of all these things by which the economy of a road is measured, where does the brick road belong?

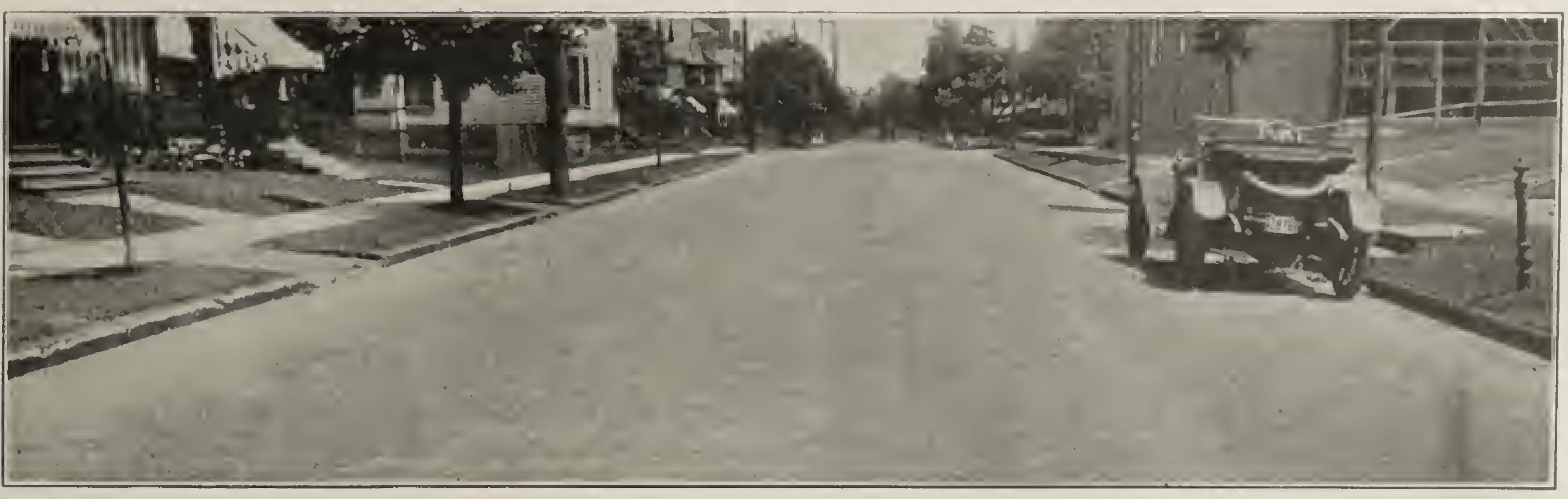
If we properly understand how a block stone road should be constructed, in order to attain its highest efficiency and best service, we must accord it a place, perhaps the first place, as affording the best economy for roads and streets, subject to heaviest and most severe traffic.

I regret to state that the elements of economy that are combined in a properly constructed stone block road are known to too few road builders in this or our own country, and when you begin to enumerate them, many a man will regard your assertions with suspicion. The writer recalls the shock with which his assertion was received by a well known engineer to the effect that the noise resulting from the use of a properly constructed block stone road was much less than that which was common to roads of certain other materials. The lack of appreciation in this respect was entirely due to the fact that the engineer in question had had no experience with a properly constructed block stone road.

The place here given to a block stone road will not be supported by assertions or any detail of testimony. This should be done primarily by the people commercially and particularly interested in block stone pavements and it is surprising that so far as the general public is concerned, they—the block stone people—do not understand, at least they do not advocate, the best use of their own product. This concession which I confess puts the use of stone block within somewhat narrow limits, the use of vitrified brick is properly placed within the larger limits of the excessively used highways and important thoroughfares of the country. Such roads are to be found from points where travel converges and terminates at large centers of distribution. It also includes such roads as connect up centers of trade and population—in other words, the main market roads and thoroughfares of the country.

The original cost of a brick road is not necessarily excessive. The cost of grading, drainage, bridging and the entire preparation for placing thereon the artificial foundation and wearing surface, should be alike for all types and is, therefore, no more expensive for a brick road than is required for the least expensive type of wearing surface. This necessary preparation in the case of a brick road bears a feature of economy that is well worth while to mention. It is not readily injured, either from wear or tear or from any character of climatic influences. It is likely to remain intact. With the brick wearing surface placed upon it, ample protection for the durability of all the work incident to such preparation is afforded.

A curb for a brick highway is not necessary. A small



Hough Avenue, Cleveland, Ohio. Laid on the Natural Sand Cushion with Cement Filler. The Pavement Was Laid in 1895 and Although Subjected to Heavy Traffic, Is In Excellent Condition.

upper lug built on the extreme edge of the concrete foundation, the height of the depth of the sand cushion, is all that is necessary.

The concrete foundation, if used, must be made entirely smooth, conforming to the grade of the finished street. Even a concrete foundation is not essential in case the subgrade contains much sand and gravel, enabling a complete, ready and perfect drainage. The ideal condition is a dry sub-base. A concrete foundation, however, is advisable in most instances throughout Canada where we naturally expect a considerable season of low temperature. Over this foundation, whether of natural soil or concrete, must be placed a cushion of sand to a uniform depth from 1½ to 2 inches, thoroughly and evenly compressed upon which to place the brick. The interstices of the brick must be filled from the sand cushion full and flush with the top, a mixture applied as a fluid, of the best quality of Portland cement and fine sharp sand in proportion of one to one; the setting of which shall be protected from use, uneven temperature and destructive weather elements until completely set.

The details by and under which the construction is attained can be readily obtained from the National Paving Brick Manufacturers' Association, by addressing their headquarters at Cleveland, Ohio.

Cost and carriage of paving brick at points in the United States and Canada varies approximately from 75 cents to $1.25 per square yard. If constructed as stated, with a quality of vitrified brick purchasable at more than one hundred and fifty points in the United States—figured and built as indicated herein at cost and reasonable profit, what has the public received in exchange for its money? A public highway at a cost that cannot be regarded as excessive, the up-keep of which at least next to or equal to that of a properly constructed granite surface, covering a long period of years, subject to the most insignificant repairs, if any at all. As to use, a highway surface that like the old-time reputed Scotch rye, grows better with age. Its traction resistance is at a minimum, its load bearing strength at a maximum.

Such a road originates no dust. Offal and droppings are fanned by traffic to either side of the roadway before ground into dust. Abutting property owners in nowise suffer any inconvenience and the general freedom from dust makes travel a delight. Slipping of horses and skidding of automobiles is most rare. Such roads are a pleasure and comfort to the footman. Its sanitary condition cannot be surpassed.

The future economy to the province or state as a whole is readily seen in the near distant future. The combination afforded in the quick and frequent movement of products and convenience to the traveler that is to be found in such roads will be found to surpass the present so-called interurban roads of the day. The economy declared herein is not founded upon theory. Neither is it based upon experimental roads of three, four, five, eight, or even ten years in use. The evidence is beyond dispute.

The main street of Belleville, East St. Louis, Alton and Danville, Illinois; Terre, Haute, Brazil, Richmond, Anderson, Frankfort, Lebanon, Indiana; the main street of

One-half Mile South of Twinsburg, Ohio, on the Cleveland-Akron Road.

Vitrified Brick Highway Between Hudson and Akron, Ohio.

Lexington Avenue, Cleveland, Ohio. The Original Pavement, Laid Sixteen Years Ago, Is in Excellent Condition, Despite the Heavy Traffic.

Portsmouth, Chillicothe, Sandusky and Conneaut, Ohio, are brick paved. All of these streets have more than an average life of twenty years. In Cleveland and other large cities, many brick streets including such streets as 15th, 16th, Mentor, Buhrer, Holmden and Lexington avenues have pavements whose average life exceeds that of twelve years.

There are hundreds of streets to be found through the above mentioned towns that have been in use exceeding ten years, every one and all of which have not called for a penny of repair due to wear and tear. It is true, cuts and openings that have been made in the pavements have been repaired first class in most instances and in some instances these cuts and openings have been carelessly repaired and have impaired somewhat the quality of the street, but there is no evidence whatever of sufficient wear and tear from traffic uses of these streets which have called for any repair whatever. Not a single one of the streets referred to above but that bears every evidence of continued life and service in good condition.

It must be borne in mind that the average traffic upon these streets, at the least calculation, is twice that of any traffic that is borne upon any part of the country highways of the main market or inter-county system. The burden of wear and tear is thus reduced one-half in its application to county highways. The expectant durability for brick paved country highways is, therefore, twice that of the heavier city traffic.

In the face of this unquestioned evidence the life of a brick roadway can be estimated to be much beyond that of a generation. The maximum worth of such a street or road is attained by reason of its continued good condition. It is never out of commission; not out of repair condition; a condition satisfactory for use away and beyond a place in road economy. Such a road is in a class by itself. No road of other material has ever approached it.

It is this kind of indisputable evidence that has influenced the governors of states like New York, Ohio and Iowa in the interest of this great public welfare question to set the seal of approval for the use of vitrified brick for roadway purposes. They have gone so far as to ask for means at the hands of their respective legislatures for the state to share in their manufacture. It is a practical, common sense way to conserve the economy of state expenditures to the highest degree. It is a step in the right direction; one that the writer believes will not only meet the approval of our people but he firmly believes that when these durable, practical roads are brought into a more common use, it will be admitted that they are serving their place in the economy of civilization and public welfare equal to that degree of efficiency now contributed by the steam railroads of the country. In such service the economy of a brick road will be regarded as unsurpassed.

One Mile North of Hudson, Ohio on the Cleveland-Akron Road.

Electricity in the Clay Plant

Written by a Practical Electrician for the Practical Clayworker.
This is one of the valuable features of the coming (June 16) number.

Also

Something About Roofing Tile

With Illustrations and Diagrams showing why some American-made tile fail.

Brick and Frame Comparative Costs

Initial Cost of Brick So Little More Than Frame That Economy Dictates the Only Permanent Material

THE COMPARISON of cost between a brick and a frame building which has been the interesting problem which many home builders have had to investigate, is interestingly handled by a writer covering a report made by a committee of the Boston (Mass.) Chamber of Commerce on fire protection. In part the article is as follows:

"The conclusion reached was that the slightly greater cost of brick, which averaged under ten per cent more than frame, was more than offset in a few years by the lesser cost of maintenance and insurance and by the greater comfort and durability of the structure.

"The report says that when lumber was cheap and brick was more expensive than now the idea became general that the cost of brick as compared with frame was almost prohibitive, and this continues, although the conditions have changed so radically that the cost is now little more and the ultimate cost is less.

"The purpose of the investigation was to encourage the use of brick and non-combustible interior construction for the purpose of fire prevention, and this form of building was very strongly urged by the report. Bona fide bids were obtained from five different contractors of good reputation on the cost of the construction of dwellings of brick, wood, cement and hollow blocks, the houses to be the same in every particular except the outer walls.

"Bids were obtained on a modern eight-room house, of good design and excellent arrangement, such as is frequently built in and about large cities, and on these the bids of the five contractors varied comparatively little, and so the average was taken as a fair test of the practical cost, the contractors including their profits in all cases. The average bid for the various types was as follows, the second column showing the percentage of excess cost of each type over clapboard type:

Clapboard	$6,759.95	.0
Shingle	6,868.80	1.06
Ten-inch brick wall, hollow	7,372.48	9.1
Twelve-inch brick wall, solid	7,641.00	13.0
Stucco on hollow block	7,187.65	6.3
Brick veneer on hollow block	7,483.16	10.7
Stucco on frame	6,952.90	2.9
Brick veneer on boarding	7,226.44	6.9
Brick veneer on studding	7,153.98	5.8

"The committee corresponded with contractors in various parts of the country in making up its report, and found from them that brick buildings were commonly estimated to cost ten per cent more than frame, while brick veneered buildings could be put up in many sections for five per cent more than the cost of frame buildings, the difference in cost being usually more than offset by the lessened insurance premium.

"In the same way estimates were obtained on annual cost of maintenance, including depreciation, for frame and brick dwellings, and it was found that the frame dwellings cost twenty-six per cent more for maintenance and depreciation than the brick dwellings."

The Arcade Building, on Michigan Avenue, Chicago, One Block South of the Blackstone Hotel. Here, Among Shops Devoted to Women's Wearing Apparel, the S. S. Kimbell Brick Company Has Built a Show Room, in Which the "Latest Creations" in Face Brick Are Exhibited with the Same Attention to the Ethics of Modern Merchandising as Characterizes the Sale of Dresses and Lingerie in the Adjoining Shops.

Freight Tariffs and Troubles

A Department of Vital Importance to Every Manufacturer of and Dealer in Clay Products and Kindred Materials

Conducted by

Irwin W. Preetorius

Freight Tariff Counselor

BEGINNING June 1, "Brick and Clay Record" inaugurates a new service for its readers that will, in the opinion of the management, be of inestimable value to the clayworking industry. Briefly, the service is as follows:

1. To write and publish information relative to the rulings of the Interstate Commerce Commission and State Commissions covering technical features in all traffic matters.
2. To furnish, without charge, full information covering any specific case that may come to us from our subscribers, as to their rights in questions of loss and damage cases, or other claims against carriers, and to instruct them how to properly prepare and prosecute such cases.
3. To furnish, without charge, information and advice regarding car service, this involving not only the proper free time allowed for loading and unloading, but also questions involving reciprocal car service agreements.
4. To furnish, without charge, information and advice as to the prepayment of freight and the collection of freight charges from the consignee. This will cover the right of shippers and consignees and the procedure necessary to have their names placed on the credit lists of the carriers.
5. To furnish, without charge, instructions and any information necessary covering the proper billing of shipments, including the proper manner of describing the goods shipped, when making out the bills of lading, and the routing that the shipments are to take, in order that the shipments shall carry the lowest legal rate of freight. This will also cover the entering of the freight rate on the bill of lading, where doing so will accrue to the advantage of the shipper or consignee.
6. To furnish, without charge, all information necessary in specific cases, as to the liability of carriers in assessing overcharges, and the indefinite settlement of claims of any nature, made by the shipper or consignee as against the carrier.

It is believed that the items mentioned cover every point in which the manufacturer or dealer needs expert advice in his dealings with the carrier. Some time, in the course of each year's business, every shipper comes to a point where he believes that a higher rate has been charged him than should have been charged—not necessarily in the freight rate itself, but in demurrage claims, switching charges, erroneous routing and the like. He is compelled to meet and settle with his customers, claims for damaged goods. All too frequently he finds that he cannot recover these charges from the carrier.

With the mass of claims coming into the offices of the carriers, it is only fair to assume that those which are properly prepared, and which are accompanied by the proper proofs of damage, receive first attention. Claims that are carelessly prepared are either set aside indefinitely or made the subject of an official correspondence that takes months—sometimes years—to bring to fruition.

In this, the railroads are not altogether to blame. They maintain expensive "claim departments" for the sole purpose of making legal restitution, as provided by the Federal law. Where claims are properly prepared and accompanied by the proper proofs, they can be passed upon with considerable speed, and consequently make a good "showing" for the freight claim department. It is reasonable to believe, therefore, that properly prepared claims are "preferred claims" and are given preference, at least so far as speed is concerned.

"Brick and Clay Record" readers are invited to send to this department for any information relative to the movement of freight, freight tariffs, routing, or any other topic that is properly covered by a service such as is here inaugurated. It is not necessary that the question should be confined to the subject outlined in this article—if we can answer the question it will be answered. And the answers may be depended upon as being correct.

The shipper is as necessary to the carrier as the carrier is to the shipper. The average carrier, instead of being against the shippers' interests, is, as a rule, very willing to keep in his good graces. It must be understood, however, that the granting of an improper claim could be construed as a rebate—something that the Federal law has tried to stamp out ever since the Interstate Commerce Act was made effective.

The filing of improperly drawn claims clogs the machinery and sets back the just claim. The long drawn out correspondence frets shipper and carrier alike.

"Brick and Clay Record" will do its part to smooth out the rough places and oil the machinery of freight traffic matters for its readers.

It remains for the readers to give "Brick and Clay Record" something to do.

Changes in Freight Rates.

Changes in freight rates that affect clay, brick and hollow tile and all articles taking the same rates are given below. These include all changes that have become effective since our last issue:

From Eastern Points.

From Albany, Green Island and Troy, N. Y., fire brick and fire clay to Skaneateles Jct., N. Y., $1.75 per net ton; to Oswego, N. Y., $1.60 per net ton; to Buffalo, Black Rock, Brockport, Depew, Echota, East Buffalo, Le Roy, LaSalle, Lockport, Niagara Falls and North Tonawanda, N. Y., $2.00 per net ton.

From Amboy and Syracuse, N. Y., brick, common, building, hollow, paving, blocks, hollow building, fireproofing (made of clay) and drain tile, to Anos Siding, N. Y., $1.30 per net ton; to Beaver River, Big Moose and Brandreth, N. Y., $1.75 per net ton; to Bryant's Siding and Chasm Falls, N. Y., $2.00 per net ton; to Carter, N. Y., $1.75 per net ton.

From Bradford and Lewis Run, Pa., brick, various kinds, and clay, to Charlotte (Beach Avenue), N. Y., $1.05 per net ton.

From Carteret, Chrome, Keasbeys, Maurer, Perth Amboy and Sewaren, N. J., brick and articles taking the same rates, to Ausable Forks, $3.00 per net ton; to Central Bridge, Cherry Valley, Comstocks and Corinth, N. Y., $2.50 per net ton; to Delanson, Esperence, Howe's Cave, Hyndsville, Menads, Schoharie Jct., Seward and Sharon Springs, N. Y., $2.00 per net ton.

From Catasauqua, Pa., fire or hollow brick, to Martin's Creek, and Millers, Pa., 65c per net ton; to Mt. Bethel, Pa., 80c per net ton; to Nazareth, Pa., 50c per net ton; to Northampton Junction, Pa., 45c per net ton; to Summit, Pa., 50c per net ton; and to Sussex, N. J., $1.10 per net ton.

From Corry, Pa., brick and clay products, to Fairview, Pa., $1.05 per net ton.

From Haverstraw, N. Y., brick, to Elizabethport and West Side Avenue, N. J., $1.70 per net ton.

From Kaulmont and St. Marys, Pa., brick and other clay products to Brocton, N. Y., $1.25 per net ton; to Erie, Harbor Creek, and North East, Pa., and Westfield, N. Y., $1.25 per net ton.

From Kaulmont and St. Mary's, Pa., clay products, to Detroit, Mich., $1.60 per net ton.

From Kaulmony and St. Marys, Pa., clay products, to Hollins, Lynchburg and Roanoke, Va., $3.00 per net ton.

From Kingsland, N. J., brick, common or building, to Bergenfield, and Hoboken, N. J., $1.30 per net ton, to Weehawken, N. J., $1.15 per net ton.

From Nazareth and Northampton Junction, Pa., common brick, to Lehigh Gap, Pa., 50c per net ton; to Lewisburg, N. J., 90c per net ton; to Liberty Corners, N. Y., $1.00 per net ton; to Longacre, Pa., 60c per net ton; to Bath Junction and Bath Portland Mills, Pa., 35c per net ton; to Pen Argyl, Pa., 43c per net ton; and to Sandts Eddy, Pa., 40c per net ton. Rates from the same points to Palmerton, Pa., 50c per net ton; and to Shoenersville and Catasauqua, Pa., 35c per net ton.

From Philadelphia, Pa., common brick, to Linwood, N. J., $1.35 per net ton.

From Port Murray, and Washington, N. J., brick, common or building, to Haworth, N. J., $1.50 per net ton; to Highland Falls, N. Y., $1.80 per net ton; to Kingston, N. Y., $1.90 per net ton and to Marlboro, N. J., $1.80 per net ton.

From Roseton, N. Y., building, common and paving brick, to Cranford, Dunellen, Plainfield, Roselee and Westfield, N. J., $2.00 per net ton.

From Syracuse and East Syracuse, N. Y., brick, common, building, hollow, paving, blocks, hollow building and drain tile, to Woods, N. Y., $1.75 per net ton; to Owl's Head, N. Y., $2.00 per net ton; to Malone, N. Y., $2.00 per net ton; and to Piercefield, N. Y., $2.00 per net ton.

From South Schenectady, N. Y., common brick to Newark, N. J., $2.25 per net ton.

From Winslow Junction, N. J., common brick, to Elizabethtown, Pa., $1.50 per net ton.

From York (stations 1 to 17 inclusive), Pa., brick to Coatesville, Pa., $1.10 per net ton.

From Middle West Points.

From Bowlus, Minn., brick, to Duluth, Minn., and Superior, Wis., 4¼c per cwt.

From Kenmare, N. D., brick, to Portal, N. D., 3c per cwt.

From Brook, Ind., brick, stone conduits and asphalt paving blocks, to LaCrosse, Leide's Park, Stoddard, Chaseburg, Coon Valley, Austin, Rock Spur, Westby, Budley and Viroque, Wis., $1.60 per net ton; to Attica, Cayuga and Veedersburg, Ind., $1.70 per net ton; to Brooklyn, Bloomfield, Martinsville and Mooreville, Ind., $1.85 per net ton; to Brownstown, East St. Louis, Mt. Vernon and St. Elmo, Ill., and St. Louis, Mo., $3.35 per net ton; and to Collinsville, Ill., $3.35 per net ton.

From Danville and Woodland, Ill., brick, stone conduits and asphalt paving blocks, to LaCrosse, Leide's Park, Stoddard, Chaseburg, Coon Valley, Austin, Rock Spur, Westby, Budley and Viroque, Wis., $1.60 per net ton; to Attica, Gayuga and Veedersburg, Ind., $1.70 per net ton; to Brooklyn, Bloomfield, Martinsville, Mooresville, Ind., $1.85 per net ton; to Brownstown, East St. Louis, Mt. Vernon and St. Elmo, Ill., and to St. Louis, Mo., $3.35 per net ton; to Collinsville, Ill., $3.35 per net ton.

From De Pere, Green Bay and Marinette, Wis., and Menominee, Mich., brick, to Hancock, Houghton, Marquette, Eagle Mills and Michigamme, Mich., 8c per cwt.; to Sault Ste Marie, Newberry, Hubbell and Lake Linden, Mich., 9c per cwt.; to Laurium and Calumet, Mich., 10½c per cwt.

From Detroit, Minn., brick, to Fairmont, Oswald, Hankinson, Stiles, Lidgerwood, Alicia, Rensom, Perry, Forman, Towanda, Cogswell, Nicholson, Hample and Oakes, N. D., 7c per cwt. and to Bismark, N. D., 10c per cwt.

From Hobart and Porter, Ind., brick, to Milwaukee, Wis., 5c per cwt.

From Ironton, Jackson, Waverly and Wellston, Ohio, brick and articles taking the same rates, to Aurora, Ill., $1.95 per net ton; to Elgin, Ill., $1.95 per net ton; and to Keokuk, Iowa, $2.60 per net ton.

From Menominee, Mich., brick, to Negaunee and Ishpeming, Mich., 7c per cwt.

From Carver Mich., brick, to Watertown, S. D., 9c per cwt.

From Minneapolis, Minn., brick, to Fonda, Overly, Tasco and Omemee, N. D., 13c per cwt.

From Neenah, Menasha, Appleton, De Pere and Green Bay, Wis., brick, to Negaunee and Ishpeming, Mich., 8c per cwt.

From Port Huron, Mich., drain tile, to Akron, Mich., 7c per cwt.; to Bad Axe, Mich., 7½c per cwt.; and to Kalamazoo, Mich., 8½c per cwt.

From Shawnee, Ohio, brick, to Bathurst, N. B., $5.70 per net ton.

From St. Paul, Minneapolis, and Minnesota Transfer, Minn., brick, common or pressed, hollow, fire and paving brick, to Menominee and Tramway, Wis., and Bessemer, Mich., 10c per cwt.; to Calument, Mich., 12½c per cwt.; to Champion, Mich., 10c per cwt.; to Dollar Bay, Mich., 11c per cwt.; to Hancock and Houghton, Mich., 11c per cwt.; to Humboldt, Mich., 10c per cwt.; to Iron River, Wis., 8c per cwt.; to Ishpeming, Mich., 10c per cwt.; to Lake Linden, Mich., 11c per cwt.; to Marquette, Michigamme, Republic, Sidnaw, Munising and Negaunee, Mich., 10c per cwt.; to Newberry, Mich., 12c per cwt., and to St. Ignace and Sault Ste. Marie, Mich., 12c per cwt.

From West Salem, Ill., brick, to Flora, Ill., 90c per net ton.

From Western Points.

From Altoona, Brickton, Buffalo, Buffville, Caney, Coffeyville, Elk City, Ft. Scott, Fredonia, Gas, Independence, Iola, LaHarpe, Mound City, Neodesha, Ottawa, Peru, Pittsburgh, Sycamore and Tyro, Kan., brick (except bath or enamled), including fire, clay and hollow building tile, to Abie, Arlington, Bee, Bennington, Blair, Brainard, Bruna, Cedar Bluffs, Colon, Dale, De Bolt Place, Dodge, Dwight, Irvington, Kennard, Morse Bluff, Washington, Fremont, Linwood, Seward and Wahoo, Neb., 10½c per cwt.

From Bismark, N. D., brick, common, pressed or hollow, to Regina, Sask., when originating at Dickinson, N. D., 16c per cwt.; to Hebron, N. D., 17c per cwt.; to Saskatoon and Sutherland, Sask., when originating at Dickinson, N. D., 20c per cwt., and when originating at Hebron, N. D., 21c per cwt.; to Yorkton, Sask., when originating at Dickinson, N. D., 20½c per cwt., and when originating at Hebron, N. D., 21½c; to Edmonton and Strathcona, Alta., when originating at Dickinson, N. D., 26½c per cwt., and when originating at Hebron, N. D., 27½c per cwt.

From Denver and Golden, Colo., brick (except bath and enameled) and fire clay to Orin Junction, Wyo., when destined beyond, 17c per cwt.

From Fort Dodge and Lehigh, Ia., brick (except bath and enameled), clay conduits and articles taking same rates, to Arlington, Cedar Bluffs, Ceresco, Colon, Davey, Fremont, Lincoln, Swedeburg and Wahoo, Neb., 9c per cwt.

From Spokane, Wash., brick (except glazed or enameled), common, fire, building, paving and pressed, and fire clay, to Vancouver, B. C., 20c per cwt.

From Versailles, Mo., brick (except bath and enameled) and clay products, to Sioux City, Ia., 11½c per cwt; and to Des Moines, Ia., 10c per cwt.

From Cowan and Falls Creek, Pa., paving brick, to Sharon, Wis., $3.15 per net ton.

From Southern Points.

From Hancock, Md., brick, to Keyser, W. Va., $1.25 per net ton; and from Williamsport, Md., to Kempton Junction and Thomas, W. Va., $1.60 per net ton.

W. C. Denison Entertains Licensees

On March 9th at the LaSalle Hotel, Chicago, a meeting was held by a committee representing the manufacturers and representatives of the Denison Interlocking Tile throughout the country.

The sessions lasted all day, and at noon a luncheon was served through the courtesy of the Denison Tile Engineering Company. After the coffee had been disposed of, the cigars passed, a photograph was taken of the few whose "other engagements" had not been so pressing as to preclude their participation. These are shown in the illustration below, and are identified as follows: Top row: H. H. Potter, Jr., Clay Product Co., Chicago, Ill.; R. L. Parker, Clay Product Co., Chicago, Ill.; F. W. Donahoe, "Brick & Clay Record," Chicago, Ill.; F. W. Darling, Clay Product Co., Chicago, Ill. Second row: G. A. German, Sun Brick Co., Toronto, Canada; O. L. Richards, Clay Product Co., Chicago, Ill.; R. D. Hatton, Laclede-Christy Clay Products Co., St. Louis, Mo.; C. M. Hurst, Morehouse & Wells Co., Decatur, Ill.; J. F. Denison, Denison Clay Co., Coffeyville, Kan.; A. F. Greaves-Walker, Sun Brick Co., Toronto, Ont.; B. J. Graham, Ohio Clay Co., Cleveland, Ohio. Bottom row, left to right; W. J. Burke, American Clay Products Company, New York City; W. C. Denison, Denison Tile Engineering Company, Cleveland, Ohio; J. H. Payne, Fraser Brick Company, Dallas, Tex.; L. L. Denison, Delaware Clay Mfg. Company, Delaware, Ohio; C. W. Miller, The Advertising Department, Cleveland, Ohio.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

FIRE BRICK, which have to stand very high temperatures and chemical action, are mostly burned at a much lower temperature than they will be compelled to stand later in the furnaces or kilns; the consequence is that fire brick made from first-class refractory raw material are found very often to be too soft; that they shrink later, when they are exposed to high temperatures, particularly in gas furnaces and gas kilns; that the pores of the soft brick and the cracks, which are the result of the shrinkage, allow melting or fluxing masses of material which become softened in the fire (for example, lime, cement, etc.) to penetrate into the lining and to destroy it very quickly, even if the fire brick have been made from the highest class of material, which has shown a very good analysis.

Some fire brick manufacturers, who are asked for a very hard-burned and high aluminous fire brick, mix their own or imported high-class materials with clay, which fluxes at a comparatively low temperature, and obtain, of course, a harder burned fire brick, but the binding material does not resist high temperatures, and the fire brick manufactured in this manner becomes soft in the lining of furnaces or kilns, and do not withstand high temperatures, better, than the afore-mentioned soft fire brick.

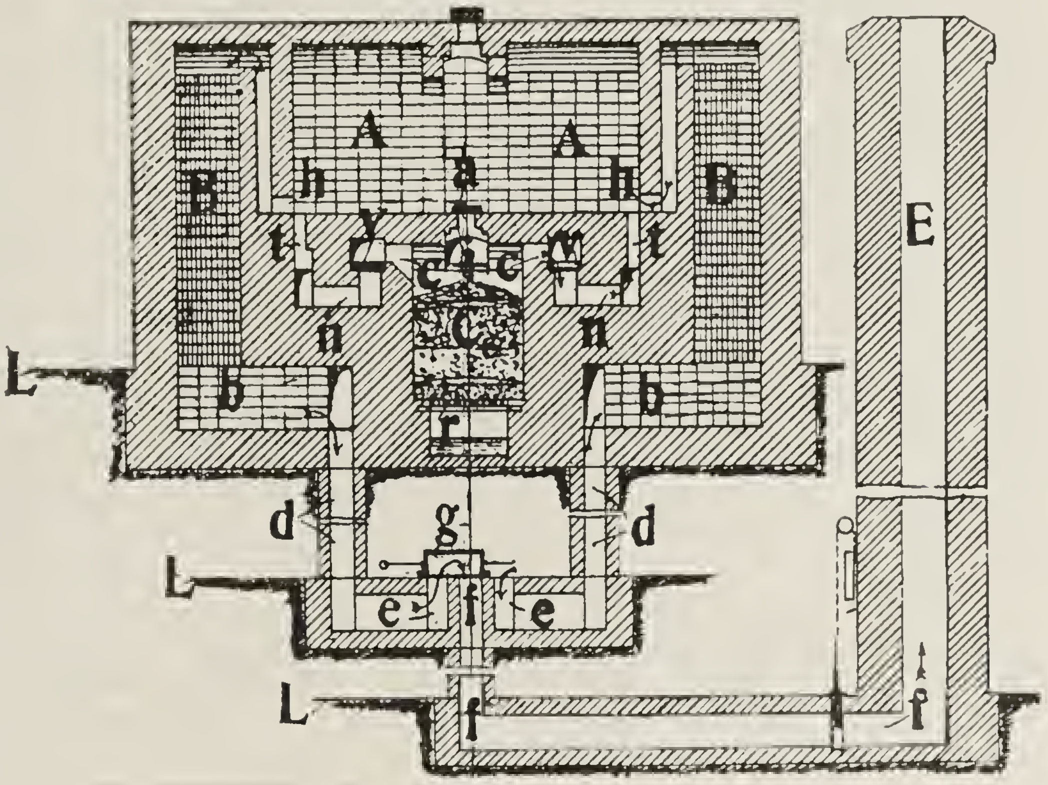
On my first visit to this country, some five or six years ago, I was astonished that the prices of so-called first-class fire brick were much lower here than they were, by way of instance, in Germany. I understood that the low prices did not encourage manufacturers to manufacture special brands for special purposes and to build modern gas kilns for burning special qualities.

I strongly believe that if a fire brick manufacturer would prove that a certain brand of his goods would stand twice or three times as long as another fire brick, for which his customer only paid half, the latter would gladly pay him twice the amount, as he is saving many times more on expenses for repairs and, by getting a higher efficiency of his plant, having less furnaces or kilns (and capital) idle by the necessity of repairs.

In most of the furnaces and kilns, only a small part of the fire brick, which are required for lining purposes, must be of especially high fireproof, chemically and physically, resisting material, and the building costs are not much increased by the higher price of a small portion of the fire brick material. But the fire brick manufacturer, who is able to supply the special material will, in most cases, secure the order for ordinary fire brick.

A kiln, designed by the author, in which fire brick and refractories may be economically burned at very high temperatures, is shown in the accompanying diagram.

The construction of the kiln and the process of burning are based upon the well-known principles of the Simens' regenerative gas kilns, which insured the success, for instance, of the steel and glass industries, which could not exist in their present magnitude if they did not use regenerative gas kilns.



In the accompanying illustration, *A* marks the chamber where the fire brick or other goods are to be burned and cooled. *B* designates the two regenerative chambers, or heat-accumulators, which are filled with a grate-work or checker-work of fire brick, for the purpose of accumulating or regenerating the heat which in other kilns escapes immediately through the chimney. In the new kiln, this heat is entirely used for heating the air which generates the flames. Hot air, of course, develops a much hotter flame than cold air, which is used in the old-fashioned kilns. Instead of several furnaces, the new kiln is provided with but one furnace, marked *C*, which is a *gas-producing furnace;* but the long mains which other gas producers have are entirely avoided, and the fire gas enters into the kiln-chamber *A*, also with a high temperature, without any loss of heat. The gas flues on both sides are marked *c* and *t*. Dampers *V*, arranged in those flues, accessible from the outside, direct the fire gases either to the right or left side. Letter *a* marks another very short flue, through which a permanent current of gas may be introduced into the center of the chamber *A* for the purpose of securing an equal distribution of the heat.

The regenerators or heat accumulators (*B*) are connected by flues (*b*) forming a part of the regenerators (*B*) and by flues (*d*) with the flues (*e*), which are arranged on either side and close to the chimney flue (*f*).

A sliding box-valve (g) covering the chimney flue (f) and one of the flues (e) connects the kiln on one side with the chimney; whilst the other, or right-hand flue, is left open to permit an entrance for the air.

In the position of the gas dampers (V) and of the sliding box-valve (g), shown in the design, the gas, air and flames take a course indicated by the arrows.

If the box-valve (g) is reversed, so that it covers the right-hand flue (e) with the chimney flue (f) and the right-hand gas damper (V) is closed, whilst the left one is opened, air, gas and flame *take just the opposite direction* through the system and the heat which has accumulated before in the left regenerator (B) is re-conveyed and again utilized in the burning chamber (A).

In the drawing, the valve (g) is shown beneath the kiln; and the chimney flue (f) still lower, connected by vertical flues. This, however, is shown merely as a more comprehensive illustration and, in fact, the valve (g) and the chimney (E) are arranged on the same level with the kiln, and the flues (d) and (f) are, in fact, arranged horziontally immediately under the floor (L).

Now, the gas producer (C) is very similar to a common furnace, the only material difference being that the grate (r) is situated several feet beneath the feeding door (i), so that a coal bed of several feet in height (4 to 5 ft.) is kept on the grate, which fact causes the gasification of the fuel. Water is kept under the grate, and the evaporating steam protects the grate and disintegrates the molten clinkers into ashes, which fall into the water.

All the combustibles of the fuel are utilized and nothing is lost. If the reversing of the valve (g) and the dampers (V) is done regularly at certain intervals (about two hours elapsing between each reversal), the heat will be so well regenerated that the reversing box (g), which may consist of sheet iron, can be touched with the hand without fear of burns.

I have demonstrated, years ago, that in such a kiln the finest and hardest brick can be made even without a binding or fluxing material, out of the purest aluminous fire clay (containing 45 per cent alumina) and the same magnesia brick from 99 per cent pure magnesia; and silica brick from pure silica.

If four of such kiln-units are combined in one block of masonry and properly connected, a continuously working system will result, in which the heat of the cooling, ready-burned material can be utilized entirely for drying and pre-heating a fresh filled chamber, and even the flames can be conveyed from kiln to kiln.

Of course, the same kiln, or similarly constructed kilns, can be used *for the manufacture of chinaware and other ceramic products.* For the manufacture of these and other goods, it is a very important advantage of the new kiln that the goods can be pre-heated and cooled very slowly. For some fuels, as, for example, lignite, peat, wood-shavings, etc., it might be better to arrange the gas producer separate from the kilns, or one separate gas producer may be arranged for a whole block of kilns. This kiln system opens a great field for the utilization of low-grade fuels, for industries wherein high temperatures are essential.—E. Schmatolla.

Patent Office Reports.

The following patents on machines, appliances and processes that are of interest to the clayworker, were issued during the first three weeks in May, 1914. A full description of any of these patented articles may be obtained from the U. S. Patent Office for five cents:

1,095,286—Brick Machine, by C. L. Wort; 1,095,596—Brick Machine, by R. G. Rand; 1,095,920—Furnace Arch, by F. Orth; 1,096,063—Oil Burner, by H. T. Smith: 1,096,267—Paving Block, by A. V. Sammis; 1,096,306—Bricklaying Machine, by I. Kallberg; 1,096,446—Fire Door, by F. Mesker and others; 1,096,648—Ceramic Process and Machine, by R. T. Stull; 1,096,774—Gas Producer, by C. Whitfield; 1,097,141—Gas Producer, by H. Poetter; 1,097,462—Furnace Door, by J. B. Phillips.

New Use for Broken China.

Coburn, Germany, is to have a rather new and unique industry in the way of tile manufacturing. Kilns are now being constructed to make tile such as are used for wainscoting in bathrooms, hallways, etc., out of broken and damaged porcelain and iron-stone china, used in proportions of about two-thirds to three-fourths porcelain and one-third iron-stone china. Intense pressure by means of hydraulic or friction presses will be used in the molding of the tile and they can be made in any desired color and decorated. The inventor not only plans to use broken and damaged material from potteries, but also anticipates purchasing broken and discarded porcelain and stoneware from various cities. A contract has been made with the municipality of Berlin, it is stated, for the purchase of such ware as would otherwise be disposed of.

Prosperous Year for Sand-Lime Brick

The year 1913 was a banner year for the comparatively new sand-lime brick industry. The output last year reported to the United States Geological Survey was valued at $1,238,325, or $12,556 more than in 1907, the year of maximum value prior to 1913, and $38,102 more than in 1912.

Michigan continued to be the leading state, the value of its product constituting 26 per cent of the total value of all sand-lime brick produced in 1913. New York was second in 1913, as in 1912, reporting 11 per cent; Minnesota regained third place, from which it was displaced by Florida in 1912, and Florida was fourth in 1913. Eight states—California, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania and Wisconsin—showed increases in 1913 over 1912, and three—Florida, Idaho and Indiana—showed decreases.

The average price per thousand for common sand-lime brick was $6.27 in 1913, compared with $6.46 in 1912 and $6.09 in 1911; for front brick it was $10.61 in 1913, against $10.41 in 1912 and $9.53 in 1911.

The sand-lime brick industry has been the victim of "boomers." Early in its history it suffered severely by reason of glittering promises to make for a few dollars a thousand brick that would sell in competition with high-grade clay face brick. Plants were established for the manufacture of sand-lime brick without regard to market, transportation facilities, or even a supply of suitable materials. Later came the natural reaction, with a decrease in the number of operating plants. Within the last few years the industry seems to have become firmly established and is showing a reasonable growth.

The Geological Survey's report on sand-lime brick, by Jefferson Middleton, is now in press and should be ready for distribution within a month.

The Superintendent

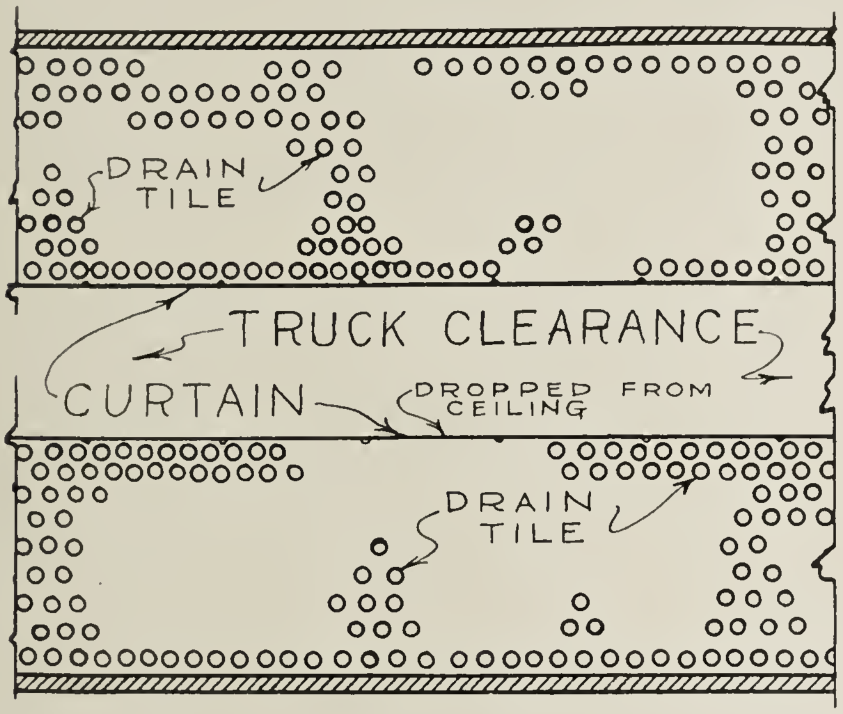
A Department Conducted for the Interchange of Ideas in Methods of Manufacture

A special prize of $5 is offered in each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?

This Idea Wins First Prize

Insures Even Drying.

When a day's run of pipe or drain tile is placed on the drying floor and allowed to stand over night, it is usually found that the outside pipe (around the edge of batch) are warped or bent outward. This is due to the fact that the outer edges of the pipe have dried more rapidly, due to better circulation of the air.



Now, if a curtain be dropped from the ceiling to the floor along the edge of the outer stands of pipe this excess circulation is eliminated and quite a large number of pipe saved that would otherwise become seconds.

The curtains can be made of ordinary burlap and supported from hooks, and thus easily removed.—D. W. J.

A Clever Oiling Device.

When we began operating our plant (about four years ago) we had lots of trouble with the pipe cutting mechanism; it was caused by not being able to get oil into the hub of the friction pulley that started and stopped the knife shaft each time a pipe was made. The pulley runs continually, having a long hub and runs between the friction plate and an overswung bearing.

When we started the press this pulley had an oil cup on the hub as shown in Figure 2. Being a high speed pulley the centrifugal force simply held the oil against the lid of the cup and there was no lubrication, the oil being even forced out of the groove in the hub of the pulley back into the cup.

After considerable trouble the writer devised the plan shown in Figure 1. We took the oil cup out, screwed in a short ⅜ nipple, put on a quarter ell another nipple and a union, curved a piece of pipe screwed into the union and put a cap on the pipe, the union being used so the pipe could be connected, as it could not be turned on account of the shaft. In this pipe we ran a loose wick of waste and filled it with oil. The pulley running as shown by the arrow point simply forced the oil in and we have never had another moment's trouble with that bearing, except to be careful not to put in too much oil as it would work through the hub and out to the rim of the pulley and get on the belt.

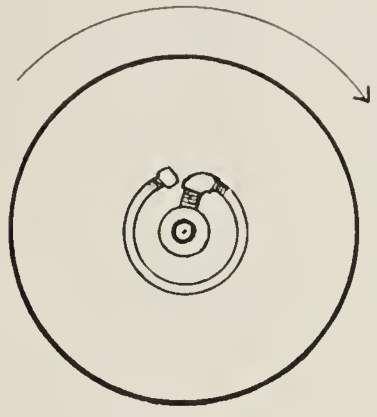


Fig 1

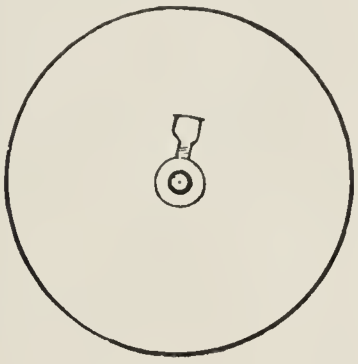
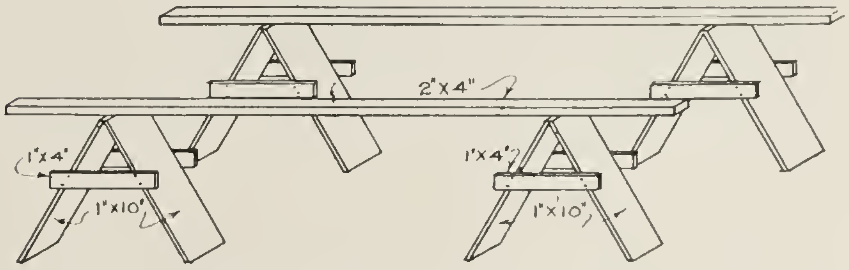


Fig 2

We had occasion some time later to equip the winding drum to the clay car the same way and this has proven fully as effectual as in the first case, while at first we had trouble getting oil into the drum bearings on the shaft.—J. E. Minter, Columbus, Ga.

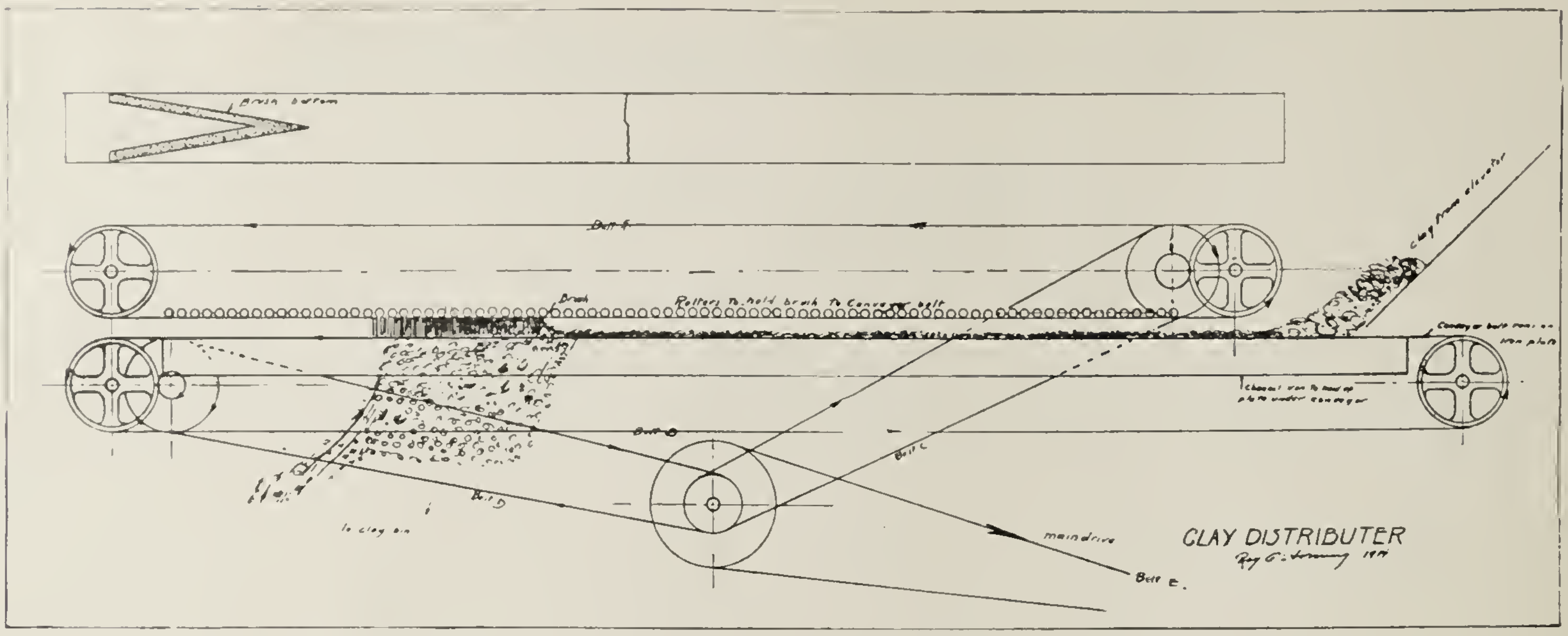
A Practical Pallet Rest.

"We find that this is cheaper and better to handle than any pallet rest we have ever used," writes D. B. Faison, manager of the Wayne Red Brick Company, of Goldsboro, N. C., "where the lift car system is used." He adds: "It is made of 1x10 planks with 2x4 supports, the length of the pieces being governed by the lift car."



Brace Y's and T's With Chuck.

In setting sewer pipe branches, as Y's and T's, it is good policy to brace the extending arm with a wad of "chuck"—moist clay of such consistency that it can be molded with the hands. Usually ware setters will use brick for this purpose. As the pipe consolidates or shrinks on becoming vitrified, a solid brace keeps the branch from shrinking with the body pipe, whereas the clay wad, contracting with the pipe, allows the free movement of all parts, in the burning.—D. W. J.



A Simple Clay Distributer.

How many times do clay products manufacturers say "If we only could secure a sure way of mixing the clay from the bottom of the pit with that which comes from the top!" Here is a distributer that will do this, thoroughly and cheaply, if used right and properly adjusted to handle the kind of clay that is being worked.

The device consists, primarily, of two belts (A and B) which run in the same direction, but one above the other. Belt A can run at any speed, the work being regulated by the number of brushes and their distance apart.

Belt B is supported by a sheet iron plate the full length of the distribution zone and belt A runs under rollers, so as to prevent the rising of the brushes in case a large lump of clay comes along, or anything else that would be apt to clog up the belts.

Belt E is the main drive and C and D are auxiliaries, which in turn are connected to belts A and B respectively.

Belt A carries the brush or brushes, as the case may be—the number and position depending upon the speed at which belt B is run.

These brushes are made in V form, so as to push the clay off at both sides and the brushes may be of steel or hard fibre. If the clay is too hard, the brushes may be placed behind a series of small scrapers, which will push off the larger pieces and leave the fine stuff for the brushes.

By having two of these distributers, one over the shale shed and the other over the storage bin, a very uniform mix will be obtained, which is the first step toward uniformity in the product.—Roy A. Horning, 1002 West California St., Urbana, Ill.

Believes in Weathering Clay.

Although the writer has made brick for 54 years, he finds that there is always something new that can be learned about the business—that is, something new to him, although it may be old to someone else. So it is with the hope that some of the things we are doing here, and which we have grown used to doing, will be new to someone else, that this letter is written to your Superintendent's Department.

Our buildings are as fire proof as we can make them, and are all under one roof. Every year some addition or improvement is added—sometimes a little, sometimes more—always enough to say "our plant is a little better off this year than it was last." The construction is brick, with cast iron lintels, the windows being, for the most part, one sash. All arches over doors and windows are made of three-inch drain tile, standing out 1½ in. and laid with a drip to the outside. The window sash and doors are inside and can be slid to one side. This makes the ventilation perfect.

Our machine equipment is a boiler and engine about 25 to 35 h.p. and an old No. 5 Brewer tile and brick machine. One "roller," that is made out of two old flour mill rolls, two dump cars, a hoisting drum (made at home out of two old McCormick harvesting machine cog wheels), and a ⅜ wire rope, are also a part of the equipment. We have four to five different clays, some of which we could not use, when we made mud brick.

Now we take our clay as it comes. We have more or less iron spalls, and these, before we had the roller, had a way of breaking the wires in the cutter. We plow our clay with a good common plow, laying open about one-third of an acre at a time. The longer it lays in the weather, the better it is for our purposes. With two horses and a road scraper, we haul it to the dump, where an empty car stands waiting. The clay is always taken from a different point in the field, and this mixes it thoroughly, as the car holds six to eight scraper-loads.

After the car is full, the driver gives a signal and the engineer, standing where he can see the driver, hauls in the car. His drum lever and engine throttle are near him, the building being arranged so that he is at the lever and throttle all of the time, yet situated where he can see the dump.

At our yard, the car is hauled in, emptied and returned to the dump in one minute, so the driver and scraper loses no time.

We keep the clay in the clay room about three days before we use it, and this, with the fact that we put it through the rollers, so giving it another good mix, is, I think, the secret of our good brick.—William Niemeyer, Sr., New Memphis, Ill.

Unity in Power-Plant Design.

It has been said of the old-time machine shop that it was not planned beforehand, but that it "grew," and that it generally grew along lines which were not those of greatest efficiency, but those of least resistance. That is, an establishment with small beginnings developed as the business was prospered, by the erection of additional buildings on the most convenient adjacent ground, and power was either sent by shafting, belting or rope from the old engine room, or else another engine was installed in the new buildings. When, later on, further extensions became necessary, they were placed where the ground could be acquired, and the operation repeated until the entire plant resembled a sort of village, or aggregation of structures, by no means such as would have been erected had the whole establishment been planned from the beginning.

In like manner, the question of the distribution of the power through such a works was effected in the manner most convenient at the time, and hence by no means according to methods which would have been employed if a general scheme had been planned out in advance.

Often the above procedure was the best which could be used under the conditions, and the use of a predetermined layout for the final result would have been impracticable. At the present time, however, the construction of great manufacturing establishments from the start has become a distinct branch of engineering work, and the result is the design of the entire establishment, as complete in detail as is the case with the great ocean steamer or a metropolitan skyscraper.

In no department of such a plan is more attention demanded than in the design of the power-transmission system. Next to the generation of the power, to the boilers, engines, and details of the power house, comes the delivery of the power from the center where it is generated to the extremities where it is utilized. A considerable portion of the power must necessarily be consumed in the journey from the engine to the tool; how much is thus absorbed depends very largely upon the manner in which the transmission is planned, how well it is adapted to the special conditions which exist, and how accurately the plans of the experienced engineer are executed in the construction.

In the consideration of the generating portion of the power plant the greatest care is taken to secure co-ordination of the various elements. The amount of power to be used is carefully determined, as well as the quantity of steam demanded for other purposes. The boiler capacity and the dimensions of the engine are thus intelligently settled, and in like manner the system of piping, water supply and other essentials are worked out. The modern manufacturers of power-transmission equipment follow out similar methods. The situation of the various parts of the plant are studied to determine whether shafting, belting or rope-drive is to be recommended. The amount of power demanded in the several operations is estimated, and has an important influence upon the choice of methods and dimensions, and when the whole has been laid out it is constructed in the light of long experience, and then assembled, tested and its completeness assured, before it is finally erected in position for service.

It is evident that such a procedure must result in the attainment of a far greater degree of efficiency than is possible in any haphazard growth, building up department by department, often with no other guide than the rule-of-thumb, and frequently with no adequate determination of the actual requirements of the situation. The modern method is both efficient in itself and makes for higher efficiency of the men by whom it is operated, and it marks one of the forward steps in mechanical evolution.—C. R. Trowbridge.

Acid Solution to Clean Brickwork.

Care should be exercised, in cleaning brickwork, to have an acid solution that is strong enough to soften the lime mortar, but not so strong as to burn the brick. The correct proportion is 2 fluid ounces of Muriatic acid to 5 gallons of water. The solution should be made in a wooden pail, as the acid will act upon metal and make a combination with it that will stain the brickwork and mortar. Soften the lime spots by splashing the solution onto the brickwork with a soft brush, as a whitewash brush, and then go over it with a hemp scrubbing brush, picking off the lime spots with a trowel or dull knife.

Ten Don'ts for Steam Shovel Engineers.

1. Don't swing your dipper after moving up before jacks are properly and safely set.
2. Don't depend on some one person to get your shovel track blocked before moving up, see to it yourself.
3. Don't expect foreman to be on the job at all times, when moving.
4. Don't get mad when you are breaking in a cranesman. Use good judgment by being patient.
5. Don't call him everything behind his back and tell to his face that he is doing all right.
6. Don't permit loafers with the fireman while shovel is working.
7. Don't do all the running yourself, break your men in for practical service.
8. Don't try and stop a man from working himself up if he looks worth while. He may prove a good find.
9. Don't show off while you have superintendents or strange visitors on the job. It doesn't pay.
10. Don't forget these are simple suggestions, but they are points worth while remembering.

John R. Walsh Goes West.

John R. Walsh, secretary of the Canadian National Brick Manufacturers' Association, is enjoying a short vacation amid the roses of Los Angeles. He stayed over a couple of days in Chicago, and spent some time with "Brick and Clay Record" making a tour of the brick display rooms in the City by the Lake.

Little Hints for the Clayworker

Notify the people that a brick house is better than a wooden one and that an all clay products house is better yet.

Work well your local territory before spreading out to larger and distant markets, if you would keep the freight item in brick cost down to the lowest point.

The electric drive in a clay working plant and the motor truck for handling the output are both live subjects of the present day. The clay worker is finding them aids in cutting down time as well as expense.

Clay is one of our great natural resources. There need not be much ultimate waste for it is always good in its raw state and even after burning the broken pieces can be put to various uses—it makes good roads.

Over in Egypt there is the biggest drainage and reclamation project of the age on tap. It is the intention to spend fifteen million dollars and redeem a million acres of land in the delta of the Nile. There ought to be something doing in the sewer pipe and drain tile business over there during the next few years.

Pottery is generally looked on by the brick maker as a little side show to the clay working industry proper, but it is really a big show in itself, for the total value of the pottery production exceeds that of any clay product other than the common brick.

When you get an order for paving brick see that it is well filled with good stock. Poor brick and poor construction stop progress in brick paving.—E. J. Sherman.

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Questions

A Department in Which Workers in Clay May Ask for a Solution of Any Problem That Confronts Them in the Plant or Office

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Ammeter for Regulating Pugmill.

350. *California—Can the device mentioned in the February 3 number, page 365, be attached to the drive shaft of the pug mill or brick machine and do the recording? Where can these ammeters be purchased?*

This question was published in our April 21 number and since then we have a letter from Otto Pommer, Superintendent, Citadel Brick & Paving Brick Company, Quebec, Que., Canada, commenting on this question, as follows:

"I do not believe that you can control your pugging by means of an ammeter. There are too many other items that take power to consider:—

1. The flow of the ground shale or raw material into the pugmill.
2. The condition of that raw material which is always changing, being dry or wet according to outdoor conditions.
3. The condition of the pugmill knives, which affects your power very heavily.
4. Bearings, gearings, etc.
5. Waste returns from hackbelt.

All in all, I do not believe that you will have any benefit whatever in your pugging.

You gain in the steady run and consumption of power, avoiding peak loads, overloading drives and motor. I am using electricity and use one ammeter for brickmachine and pugmill and another ammeter for the drypans. The machine ammeter is placed before the pugger and its duties are to regulate the flow of the material when the ammeter is coming to a peak load.

You will gain more in regular pugging by installing a spiral conveyor, if ground shale is used, or a clay feeder, if surface clay is used; a regular feed to the pugmill makes it much more convenient for the pugging and prevents waste at the machine."

Manganese in Connection with Shale.

456. *Quebec—Can you tell us to what degree shale brick should be burned to fuse manganese?*

In addition to what has already been published in answer to this question in our May 19th number, we are glad to add the following from Ellis Lovejoy, E. M.:

"In regard to the temperature to which shale brick should be burned to fuse manganese, we do not know. There is really no relation between the melting point of manganese dioxide and its fusion in connection with other minerals.

In products made of plastic fire clay, it is our experience that the manganese begins to combine with the silica and other minerals in the clay at a temperature of about Cone

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3 (2174° F.) and the most satisfactory results were obtained above this temperature, up to about Cone 7 (2318° F.). In red burning shale, which matured at kiln temperatures below Cone 1, we found very little fusion, in fact, so little that the color effect of the manganese on the ware was practically nil.

It may be that other shales would develop color from the manganese at lower temperatures than in our experience, provided the shale vitrified at lower temperatures.

We do not believe that anyone can pre-determine at what temperature the manganese will become effective.

Minerals which melt at high temperatures combine with other minerals into a fused mass at much lower temperatures. As an illustration, we use lime as a flux in the blast furnace, but lime itself is infusible at blast furnace temperatures. The elements to be fluxed are silica and alumina in the ore and coke, together with some alkalies and alkaline earth. Silica itself is infusible at blast furnace temperatures, and so also is alumina. Here, then, we have three practically infusible minerals, which in combination form a slag which becomes quite liquid at blast furnace temperatures.

In a clay mass we have silica, alumina, lime, magnesia, iron and alkalies. Except the alkalies, all of these minerals, individually, are infusible at kiln temperatures, and yet, we combine them very readily at kiln temperatures into vitrified bodies. All clays contain the above minerals in varying proportions, but the temperatures at which they began to vitrify are widely different, due to the variation in quantity of the several minerals.

We describe the fusion as rock solution. The alkalies or alkali containing minerals, such as feldspar, will melt at relative low temperatures and as they begin to melt they take up (dissolve) silica and alumina together with the other minerals present in increasing degree as the temperature advances and as the alkali solution tends to become fluid. This tendency to fluidity is offset by the increased quantity of silica and alumina taken up and in this way the vitrification advances from a very insipient stage to a completely vitrified or fused mass, in which the rock solution is complete.

In some clays the fusion starts at a very low temperature and in such clays we would expect a solution of manganese into the fused mass along with the other minerals present, and in such event we would get color effect from the manganese.

Clays requiring higher temperatures to vitrify, therefore, will involve such higher temperatures to get the manganese into solution and from it thereby its color effect.

We get fusion of the manganese and the color effect

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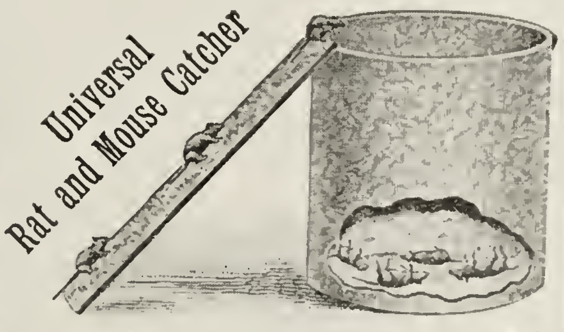

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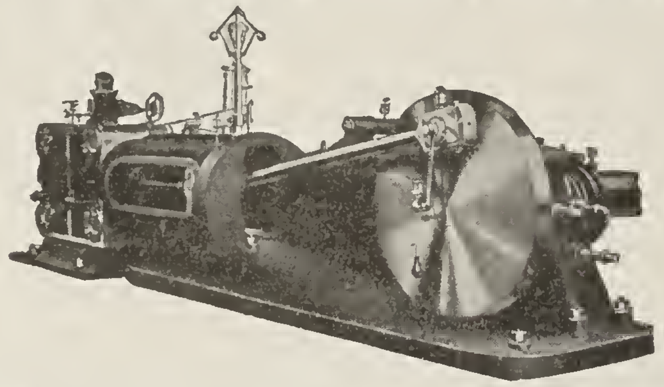

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therefrom in many products in which there is no evidence of fusion except in the manganese spots and in our experience this only occurs at temperatures above Cone 3.

In such instances the manganese becomes the fluxing element and takes up silica, etc., to form a rock solution, where at lower temperatures some mineral which fused at such lower temperatures is the fluxing mineral and the manganese is simply one of the minerals dissolved in the fused mass.

Manganese was formerly largely used in connection with red burning clays to produce a brown brick, but at the present time there is very little demand for this color as produced from manganese, since we are able to produce various shades of color from red, through brown, to gun-metal black by fire flashing the red burning clay, and these colors are more effective than the manganese browns formerly produced."

Brick Crack in Kiln.

459. *Texas—We hand you herewith an analysis of our clay, as given by the University of Texas. We are troubled with our brick cracking in the kiln, seemingly caused by expansion during hot firing. Crack appearing on two-inch face of brick generally about the middle and crack running towards center of brick. It also seems that we have not enough iron oxide, or coloring agent in our clay to give our ware a good red color, only that which is exposed to intense heat, for we are getting too many pale brick in bottom of kilns that are burned hard enough, but haven't the color.*

We would like to know if there is any chemical or mineral that we can use with our clay acting as a coloring agent without too much additional expense in manufacturing. We are using round down-draft kilns, water smoking or drying with coal and finishing with oil.

Please advise us as to handling fires and time we should take in heating up kiln and burning. At present we are water smoking a thirty-foot kiln containing about 80,000 *stiff-mud brick from five to six days and finishing kiln in about sixty hours.*

What effect would too much or not enough air going into kiln in heating up period have on ware? Any information or advice would be greatly appreciated.

The analysis is as follows:

Contains	Dry basis
Silica	77.38
Alumina	13.33
Oxide of Iron	3.27
Lime	.60
Magnesia	None
Carbonic Acid	None
Sulphuric Acid	None
Loss on Ignition	6.16
	100.74

This question was answered in the May 19 issue, but the following from Ellis Lovejoy, E. M., sheds new light on the subject:

"The analysis which you give is open to question. We do not find common clays without some alkali and if we were assured the analysis was correct, we would advise you not to use the clay simply because it would be very difficult to get a hard burned brick from such a material.

The clay is high in silica, but we have made bricks containing as high as 85% silica.

The cracking which occurs in the kiln may or may not be due to the burning. Many clays crack in the drying but these cracks close when the bricks are fully dry and are invisible. In burning they open, and, in several instances, we have found that the cracking which was attributed to the burning really occurred in the drying.

If the trouble is in the drying there will be many broken bricks in tossing and setting, due to deep cracks, and, if there is such loss, then, unquestionably, many more cracked bricks which withstand the handling, find their way into the kiln.

The cracks may be due to the burning and largely because the clay is high in silica and especially will this be true if the silica is very fine grained (silty).

It occasionally happens that the cracking is due to the cooling and this is especially true in highly silicious, silty clays which burn to a very dense, almost glassy, body. Cracks due to the cooling can easily be determined because they do not open up and, in fact, are not visible. When such bricks, however, are struck together, the evidence of a crack becomes apparent and when broken the depth of the crack is discovered.

If there is very little dryer loss and if the cracks, after the bricks are burned, are more or less open, then it is likely that the trouble occurs in the burning. Cracking in the burning is difficult to overcome, but some improvement will result through slower burning.

It is evident from the analysis that there is not sufficient iron to give a deep red color. We have tried powdered iron ore and it is frequently recommended as an addition to the clay lacking in iron, but our experience with the use of iron ore has not satisfied us that it is a desirable addition. It will give a darker color to the brick, but the color is a dull, lifeless, brownish red and very unsatisfactory. In sand molded bricks, we have on several occasions, recommended wetting the sand with a solution of ferrous sulphate (copperas), followed by drying. This treatment of the sand produces a brilliant red color and this method of coloring the sand for sand molded bricks is in practical use.

It has often occurred to us that ferrous sulphate might be used in the same way to intensify the red color of burned clay, especially where the clay is highly silicious, as in this instance. It would involve wetting the dry clay with a solution of ferrous sulphate and then drying it thoroughly in order to oxidize the sulphate. This treatment will leave every grain of the clay mass coated with a red stain which burns to a brilliant red. This, so far as we know, has never been tried out and the objection has been raised to it that the sulphate so introduced would greatly increase the scumming, which, theoretically, would be true, but in our experience theory and practice do not always agree.

In regard to the time of heating up, this depends upon the character of the clay and can only be properly determined by experimental work on the yard. If the bricks are dry when set in the kilns and are not too dense (which would be unlikely in this sandy clay), there is little danger in advancing the fires rapidly in the early stages of the burning. The only moisture present is the hygroscopic water, and this can only be driven off by temperatures above the boiling point and by the heat entering into the clay mass. Ordinary drying is from the surface and the water is brought to the surface by capillarity, but hygro-scopic water does not come to the surface by capillarity and must be evaporated by heat in contact with the surface of the grains of the clay, or sand, holding the moisture by surface tension. The amount of moisture is necessarily small and there could not be sufficient steam developed at the rate at which the heat will penetrate the brick to cause any rupture of the bond. We hold that in such instances it is generally safe to advance the heat rapidly in the early stages of the burning, or what is known as the watersmoking period.

Oxidation begins at a low red heat and at this tempera-

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ture or slightly lower (800° to 900° F.) the combined water in the clay is coming off and we recommend that the firing be not too rapid during this stage. The clayworkers whose material is high in carbon and sulphur are fully acquainted with the necessity of slow firing during this oxidation period, and they have an excellent guide in the black core, due to the carbon and know that it is only safe to advance the fires after this black core has fully disappeared.

Clays which do not contain carbon or sulphur are not troubled with the black coring and its resultant bloating and in consequence there is no evidence that the burning may not progress rapidly during this oxidation period, but it is our opinion that we should go slow during this stage whether we have a high carbon content or not. It has been proven conclusively that in some clays, at least, there is a marked expansion during this oxidation period, or, rather, during the period when the combined water is being driven off, which is coincident with the early stages of oxidation. A highly silicious brick which naturally would have a weak bond, under the strains due to this expansion, would be very likely to crack and slower advance of the heat during this period will give the clay mass greater opportunity to adjust itself to the strains introduced.

Beyond the oxidation period we have found it usually safe to advance the heat rapidly until the maximum temperature in the upper part of the kiln is attained. Then our practice is to check the draft and reduce the firing and under this condition, hold the kiln until the heat has reached the bottom.

It is impossible to say how many hours or days should be consumed in watersmoking, in the oxidation, in advancing the heat to the maximum temperature, and in the final soaking heat. Some clays can be burned without damage from start to finish in from four to five days for bricks, and much shorter time in drain tile and hollow ware. Other clays will require fourteen to fifteen days for bricks. From seven to nine days for a complete burn is common practice.

The fires should be light, but gradually increasing during the watersmoking, but when the oxidation period is reached there should be no increase in the fires until the oxidation is complete, following which the fires can be advanced as rapidly as practical until the maximum temperature is attained, when again the fires should be checked commensurate with checking the draft. During the watersmoking and oxidation the damper should be wide open with the greatest possible draft attainable and a large excess of free air. Following the oxidation the air supply should be reduced to a minimum in order to get economy of fuel. The amount of air which may be admitted during the latter stages of the burning depends largely upon the results desired. If dark flashed colors are sought, then the fires must be heavy with a minimum quantity of air, but if clear red colors are wanted, there must be some excess of air going through the fires to avoid flashing."

Pass this Copy Around

When you have finished reading this issue of "Brick and Clay Record" start it on the rounds of your plant and let each foreman and assistant read it. It may save many dollars.

The Semi-Monthly Trade Review

BUSINESS seems to be getting on its feet again. Big men are talking optimistically and captains of industry only do that when they can see a clearing ahead. They cannot afford to be false prophets.

A few days ago the American Iron and Steel Institute had its annual meeting in New York. Present were some of the biggest business men in the country. The names of Judge Elbert H. Gary, Chairman of the Board of the U. S. Steel Corporation, W. F. Thomas, president of the Briar Hill Steel Company, of Youngstown; A. F. Houston, president of the Luken's Iron and Steel Company, of Coatesville; John A. Topping, Chairman of the Republic Iron & Steel Company; Charles M. Schwab of the Bethlehem Steel Company and George M. Verity, of the American Rolling Mill Company of Middletown, O., are only incidental among the distinguished men there, but they were all talking optimism. They said that the mid-summer and fall would prove the prosperous months of 1914, and following their line of deduction it certainly seems as though business was finally breaking for a change for the better.

In fair weather and foul the behavior of the basic building material markets invariably follow the trend of steel and steel follows the lead of iron. Just a little while ago, not more than nine months, when steel was being contracted for at almost record-breaking volumes, pig iron began to fall off in demand. Immediately prices dropped to attract new business. A change for the worse was predicted in the steel industry and incidentally in that of burned clay, general building construction and real estate. And it came despite the optimistic expressions of those who do not like to acknowledge unpleasant signs. Since the first of the year iron has been sagging in price and so has structural steel. So also has building materials in general. The railroads began to retrench and money lenders held tightly to their funds pending the period of initial financial and business readjustment.

What has happened to warrant a change of opinion among the big leaders of the steel industry during the last five months? The answer may be given in one word: Crops.

Wall street has so long been the financial backbone of the country that, with the application of the new regional bank law, no one knew what was going to happen. In the absence of any great cataclysm following the application of the law, bankers and investors began to take heart. Accommodation was more readily obtainable by business houses, real estate began to move, new tracts were opened up for immediate improvement and railroads began to get their idle freight

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cars in shape to take care of the crop moving demand, hence they were in the market again for equipment which compelled the foundries and factories to move for raw material. Building and bridge projects came in for rolled steel and pig iron showed an improving demand with a larger margin of profit. All because the early crop reports give indication of record yields.

With that sort of an hypothesis a survey of the entire country for the month of May shows very evident reflection of the improved condition of business especially as it relates to the prosperity of the burned clay industry.

Incomplete May returns for the metropolitan district of New York, including the five boroughs and the five eastern counties of New Jersey, Hudson, Bergen, Essex, Union and Middlesex show a marked change for the better. The thirty per cent decrease shown on May first has been reduced mostly through the building activity in Queens, Brooklyn and East Jersey. Common brick unloaded for delivery to jobs in Greater New York on the week ending May 23 were 8,982,150 or 2,000,000 more than had been unloaded in a corresponding period since October of last year when comparative records first began to be kept. Furthermore prices of Hudson common brick have stiffened under the improved demand and manufacturers are confident enough of the future to proceed with manufacture at or over last year's rate of output. New York consumed 109,700,000 Hudson common brick up to May 22, as compared with 219,100,000 from Jan. 1 to May 23, 1913. Prices this year have been on an average of $1.00 per thousand less.

In the face brick field in this territory there is also a change for the better, largely attributable, however, to the more seasonable building weather. This department is scheduled to have aggressive competition from a new source this year for the old Silicate pressed brick plant formerly operated by the Dyatt interests at Port Jefferson, Long Island, has been rehabilitated by the Silicate Pressed Brick Company whose temporary New York offices are identical with those of the American Clay Machinery Company, at 30 West 42nd street, New York. S. H. Widdup, for years manager of the Washington, Silicate Brick Company, of Washington, has been retained to put the new company on its feet. The plant will be in operation about June 10 starting with a modest output of 20,000 a day until a market for this type of face brick has been established in the East. A New England plant may also be acquired, the two operating in conjunction supplying the face brick needs of practically all the Long Island sound ports by boat from New York to Boston.

The financial situation in the east is much easier. In New York money is easiest on apartment and tenement house projects and in Boston, business buildings are receiving a larger share of attention. One of the encouraging signs for the brick interests in New York is that many owners of vacant property are improving them with "Taxpayers," or structures just large enough to take care of the taxes and leave a slight margin of profit without entailing a large outlay in construction cost pending subsequent sale in parcel lot for more imposing improvement. Most of these structures are of brick.

In Portland, Me., the best sign of improving conditions is found in an active real estate market. According to Maurice C. Lick, secretary of the Board of Trade, building operations there probably will equal, if not exceed, those of spring of 1913 which were the largest on record in the city's history. Real estate is being held stiffy which is a good sign for future building construction.

In Indianapolis, building operations in the aggregate will show improvement over April's figures which were very close to those of April, 1913. Minneapolis builders are expecting livelier conditions, one of the reasons for the improvement being the opening up of 1,000 acres for industrial plants and another 1,000 acres for a new residence district. The half block facing Fifth, Sixth and Marquette avenues was recently sold for $1,250,000 while five years ago the seller bought the property for $750,000 thus netting a profit of half a million. The new purchasers will improve the property with a large modern building. The construction of residences, duplex flats and apartments features the conditions in Milwaukee where the Plankington Packing Company is rebuilding its plant at a cost of more than half a million dollars. A new hotel is under way there at a first cost of $150,000. The biggest building year credited to this city is $14,000,000 and there are reasons for believing that this record will be beaten this year.

Columbus apparently is planing for very extensive building improvement this year. More than $2,000,000 in real estate has changed hands in the business section in the last few months and loans being engaged or applied for indicate investments during the coming year of close to $8,000,000 which is said to be $3,000,000 in excess of the amount pledged for building improvement up to any June 1 in the last three years. Toledo is full of expectation because the Overland Automobile Company is building extensively and the New York Central lines are spending more than a million in new shops and foundries of fire resistive construction which will take large quantities of burned clay products. These two operations are expected to attract more than a thousand skilled artisans for whom homes have to be provided In anticipation of further growth of the city six thousand lots have been placed on the market for sale within the last week. It is planned to erect on these lots houses that will sell for between $3,000 and $3,500.

Omaha is showing the kind of "pep" that makes America proud of her cities. With more than a thousand homes swept down by tornado she is building up out of the dust of her former self, a city wherein a larger proportion of burned clay is being used than ever. Some idea of why Omaha is able to take a blow in the back and then comb out her locks and smile, is the fact that within a year a corner lot two-thirds of a mile distant from the business center of the place was sold for $10,000 after the owner paid only $1,000 for it.

In the south the reports from different cities differ so that it would not be correct now to state that the south is dead, or that the south is booming. There are signs of aggressive building extension here and there. In Birmingham considerable activity is shown in the down town section where larger business opportunities are forcing store and building extension. The success of the Ridgeley apartments costing more than a million and a half is encouraging others to invest in this type of building with the result that desirable centrally located real estate suitable for this class of development is being held stiffly.

Jacksonville, Florida, building money is easier. A large mill is planning the construction of a semi-fire-resistive pine and cypress cutting plant and a wood pulp mill contemplates the erection of a paper plant of similar construction that will require a large number of operatives. These people will be housed in new buildings that will sell for $2,500. Baltimore building is quiet and uneventful.

The gradual completion of the Conway addition, the Lumbermen's Exchange, the Stevens addition, the Crane Company building, the Wabash and Washington buildings, the Kaiserhof and Morrison hotels and the new building in the University group causes Chicago to cast about anxiously for signs of improving demand for burned clay, but there are elements at work in that center that rather dampen excessive

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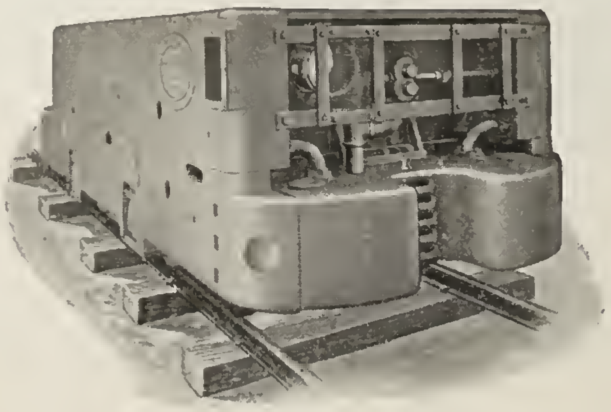

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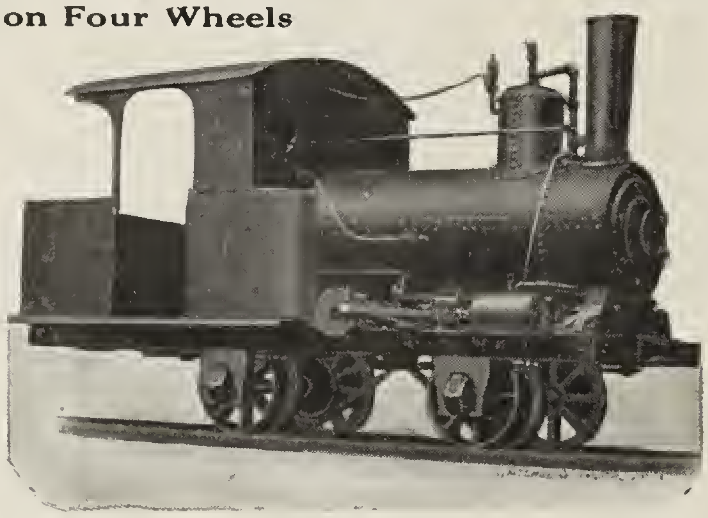

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optimism regarding the building outlook for 1914. The one redeeming feature there is the fact that realty prices are held firmly, the leasing and sales markets are fairly satisfactory and Chicago is gradually absorbing its available vacant space so that when bright skies again show forth there will be a building movement of considerable magnitude. There are some interests who believe that this happy conclusion to the situation is not far off.

Portland, Ore., building construction is in the conservative class. There is little real estate buying, but business expansion is apparent. Meier and Frank Company, big department store owners will build a 12 story building on the site of their present store 100x200 feet that will cost $1,250,000, and other business houses are also making ready for larger business. There is a decided revival in the construction of moderate priced homes to be sold on easy payment plans.

Dallas, Texas, reports a dearth of small houses despite the active building of this class of structure during recent times. The trouble in Mexico has brought many strangers to this place and it seems almost impossible to supply the demands of new comers for accommodation in detached houses. The Board of Trade is authority for the statement that more than 800 persons have been moving into this city each month for the last half-year.

The building of the Moffat tunnel, work on which will soon begin, has stimulated Denver, Col., real estate speculation since bonds were issued last February. Real estate men believe that the opening up of the rich mineral and agricultural land between Denver and Salt Lake City will mean much to both communities, but especially to Denver. Evidently the railroad companies look for expansion from this improvement because they are planning the erection of a $4,000,000 union station. In the Park Hill district, the new residental section increased its population fifty per cent, while Washington Park, which five years ago was prairie, is now a splendid small-house tract that is one of the city's show places. As Denver has practically no frame houses, by virtue of an ordinance that requires fire resistive material only, there is a generally optimistic feeling among burned clay interests supplying that market.

So the survey of the country shows that there really is a loosening up of money and a generally encouraging tone to the building construction outlook. Lack of faith has helped to put business where it is. Now let confidence put prosperity on the map of the U. S. A.

In the Wake of the News

Being Brief Mention of the Host
of Interesting Things That Have
Happened During the Past Fortnight

ALABAMA.

Articles of incorporation have been filed by the Superior Manufacturing Company, of Birmingham, Ala., with a capitalization of $40,000—$28,000 paid in. The officers are: Wiley Alford, president and treasurer; W. C. Martin, vice-president; and Alfred M. Shook, secretary. The company was organized in Gadsden, Ala., and will build its plant at that town, the product being drain tile and sewer pipe.

ALBERTA.

The Redcliff Clay Products Company, Redcliff, Alberta, is busy on an order for a half million pressed brick for some large business blocks at Swift Current.

Redcliff is believed to have the largest percentage of brick buildings of any town in the west. Out of a total of 600 structures of all kinds, there are 158 of brick.

Many of the residents of Redcliff, Alberta, are being supplied with brick incinerators, which are used to burn up the rubbish and garbage that accumulates in and around the houses.

The town of Redcliff, Alberta, is about to invest $15,000 in cluster lights for the business streets, and it is probable that brick will be used to erect the standards for these lights.

The Redcliff Brick & Coal Co. has recently been unearthing the petrified remains of various prehistoric mastadons in the shale beds at their works. The thigh bone of a dinasour, four feet long and four inches in diameter, was the latest find.

The Redcliff Pressed Brick Company, Redcliff, Alberta, Can., with other factories of the town has opened show rooms for their products in Calgary and Edmonton. This company has large brick orders for buildings in Regina, Moose Jaw and Swift Current, and they are now running at full capacity, shipping eleven car loads in one week. They are preparing to do some prospecting underground in search for a clay that can be used in making a light colored brick.

CALIFORNIA.

"Rokbrik" is the name applied by the Standard Brick and Tile Company, Colton, Cal., to their sandstone facing brick.

The Craycroft-Herrold Brick Company, Fresno, Cal., have moved their headquarters to Room No. 407 Griffith-McKenzie Building, of that city.

Sparks from an electric controller, falling on the roof of the tiling building at Simons Brick Yards, Boyle Ave., and the River, Los Angeles, Calif., started a fire April 11, that caused $15,000 damage.

J. H. Hornsby, of Galt, Calif., has secured a site at that place and is promoting a company, to be capitalized at $25,000, under the name of the Galt Clay Products Company.

The Sacramento Clay Products Company's plant near Sacramento, Cal., of which B. F. Walton is one of the principal owners, is shipping six car loads or 6,000 Denison Interlocking Tile to Oakland every day. This is equal to 50,000 brick and is the present capacity of the plant.

The Whittier Brick Company will furnish the brick for the new three-million-dollar depot to be erected for the Southern California Railroad in Los Angeles. The contract calls for two million brick, the final deliveries to be made during the latter part of the summer.

The National Burned Clay Concrete Company has entered an injunction suit in the United States Circuit Court against the City and County of San Francisco, Cal., they claiming that their patent rights have been infringed upon by the use of crushed brick and concrete, which the contractors are using in fireproofing the new city hall. This company has a process of mixing burned clay with concrete for fireproofing steel frame structures, but the city officials contend that the mixture for the new City Hall is different from the company's and will contest their patent. However, authorities on the subject state that brick concrete was not a

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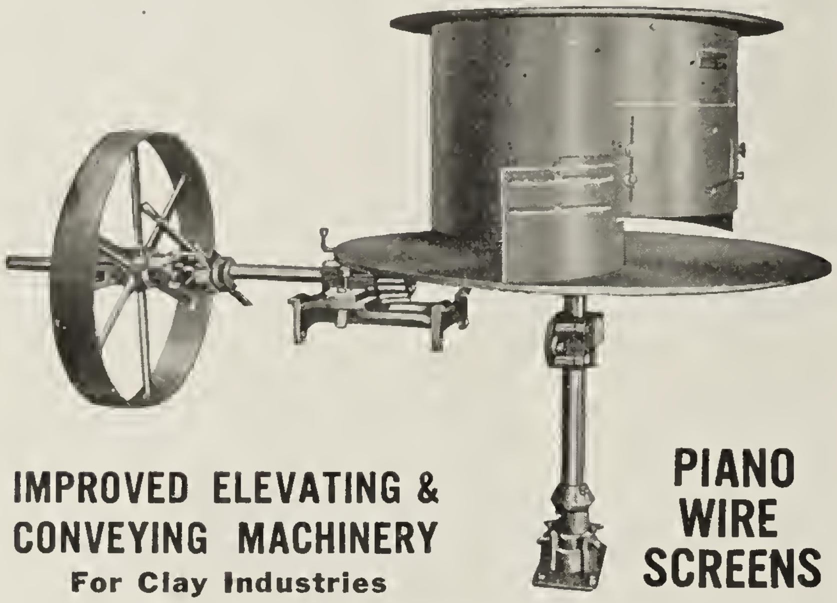

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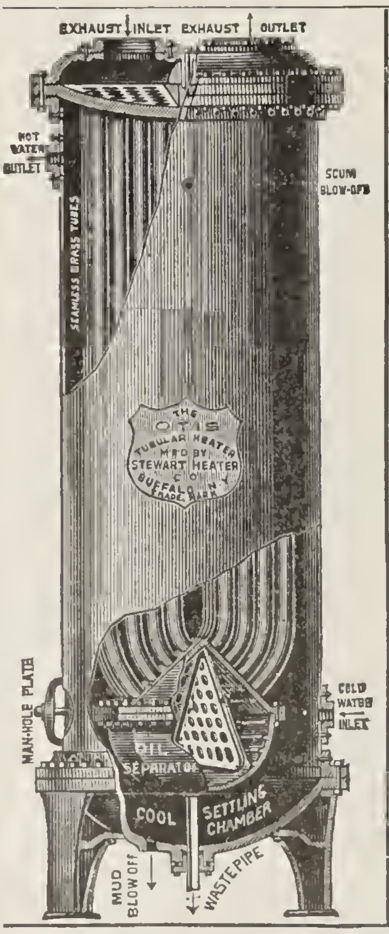

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new composition at the time the patent in question was granted on October 31, 1905, and that it had been tested by the corps of engineers, U. S. A., all data on which may be found in professional paper No. 9.

CONNECTICUT.

The Eastern Brick Company, of Berlin, Conn., filed its incorporation papers April 11. The concern will embrace the Merwin Brick Company, and the R. O. Clark Company, at East Berlin, and the Aetna Company, of Windsor. Capital stock is $50,000. R. O. Clark, of East Berlin, Conn., is president.

The Central Connecticut Brick Exchange of New Britain, Conn., has offered to furnish brick for a quarter of a mile of roadway to be constructed in Berlin as a continuation of the Warrenite state road from Meriden. As this strip of roadway will need attention shortly, the selectmen have looked favorably on the brick men's proposition, and, owing to the number of complaints that have been received against the Warrenite road, it seems very probable that this experiment will be tried.

GEORGIA.

J. F. Hanson, of Fitzgerald, Ga., will erect a brick plant at Kissimee, Fla., if the Board of Trade will provide four acres of land. His proposition is to build a plant with 80,000 daily capacity.

Increases averaging 28 cents a ton on shipments of clay from points in Georgia to New York city, Boston and other destinations in the northeast, proposed by the rail and ocean lines have been suspended by the Interstate Commerce Commission until August 29.

ILLINOIS.

A. N. Kerns has bought the tile yard formerly owned by R. B. Moody, at Deland, Ill.

The Carey Brick Company, of Chicago, was incorporated April 10, with $50,000 capital. Edward F. Walton, M. deBeer and John Le Fleur are the incorporators.

Another student in ceramics in the University of Illinois, K. E. Rockhold, whose picture was published in our May 5 issue, together with nine other candidates for graduating honors, has succeeded in locating his starting point for a big future. The L. E. Rodgers Engineering Company, of Chicago, will make Mr. Rockhold one of its staff as soon as he graduates June 15th.

The Western Stoneware Company of Monmouth, Ill., will experience a busy Summer this year. General Sales Manager Smithson recently returned from a trip through the East and among the orders he brought back with him, was one calling for 50,000 stoneware jugs. This together with other favorable conditions, it is expected, will keep the plant rushed for some months to come and the officials of the company busily concerned over the shipment of orders.

On May 26th, 1914, Leonard H. Harland, one of the founders and former president of the Illinois Brick Company, passed away at his home at 3120 Sheridan Road, Chicago, Ill. He had been ill several weeks. He was born in England and came to America when 14 years old. With his brother Edward he organized a brick manufacturing company in 1872, and continued in the business until the formation of the Illinois Brick Company. He was elected president of the company for the first three years of its existence, and was one of the directors until twelve years ago.

Brick from the clinkers of an incinderating plant is one way to utilize the garbage and waste of Chicago's streets and alleys, as proposed by the Wright Incinerating Company, of that city. This company has offered to collect and dispose of the city's garbage, including the sweepings from paved streets and manure from stables, at a saving of $16,629,000 over any other plan heretofore presented. It further agrees to spend the initial sum of $3,513,000 for a system modern in every respect to take care of Chicago's wastes and incidentally manufacture a cheap quality of brick from the clinker.

INDIANA.

Mr. R. W. Jones has purchased John Coleman's interest in the tile factory at Ridgeville, Ind., and will move to that place and assume management.

The Industrial Brick Company of Mt. Vernon, Ind., has received a new charter. The new organization will operate the plant on improved lines. The stockholders are the same as in the old concern.

The brick and tile plant at Montgomery, Ind., owned by W. S. Rhoades and Charles Byrd, was destroyed by fire April 3. The loss was only partially covered by insurance.

The old hub factory building and site, Jasper, Ind., will be transformed into a brick plant by Messrs. Traylor and Krump, who have leased this property, where they will manufacture plain, white face, granite face, red, buff, green and brown brick.

The Wabash Clay Company of Veedersburg, Ind., and the Danville (Ill.) Brick Company are making a careful survey of shale deposits around Cayuga, Ind. H. M. Booe is preparing to obtain options for them on land in the vicinity of the old brick yard. It is reported a number of options in other neighborhoods already have been obtained.

About $25,000 is being expended in repairing and refitting the Southern Fire Brick Company's plant near Hillsdale, Ind., which has been idle for three and one-half years. The new equipment includes three boilers, a 500 horse power heater, a 400 horse power engine, a brick machine and 65 feet of shafting. This company, which owns seven brick plants, expects to make the Hillsdale plant one of the largest in that part of the country to develop the 150 acres of clay land and a vein of fine blue shale 90 feet thick.

Extensive alterations have now been completed at the Indiana Paving Brick Company's plant, Brazil, Ind., and they are now ready to resume operations. The big clay sheds where the clay was formerly dumped from a tramway from the clay pit at the rear have been torn away. This pit has been abandoned temporarily, except for emergency, and clay will be obtained from the large pit of the Clay Products Company, a crane being used to unload the cars as they come in, dumping the material into a huge bin which feeds automatically in the dry pan: The clays are then hoisted to the top of the building with a new device and thoroughly screened before going to the pug mills. The change in process will eliminate about fifteen men. A new coal chute has also been constructed. Instead of shoveling the coal in unloading the flats, the coal is dumped into the chute and then let out into wagons which distribute it to the various kilns. Some new kilns are also being built and the factory is improved generally.

IOWA.

The Shenandoah Brick and Tile Works, Shenandoah, Ia., is looking forward to a heavy trade this year. This plant is now working a good force of men and a number of kilns are ready for burning.

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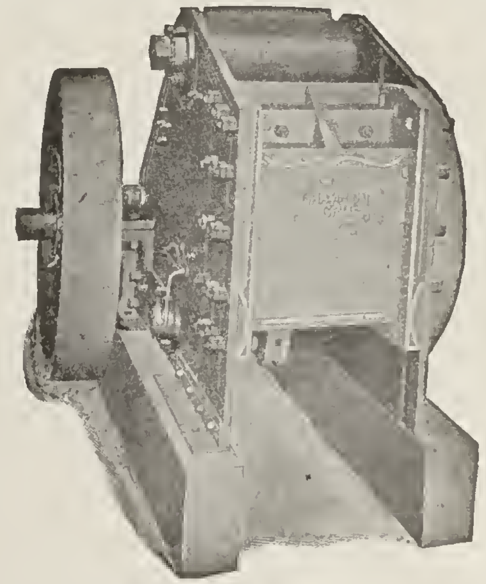

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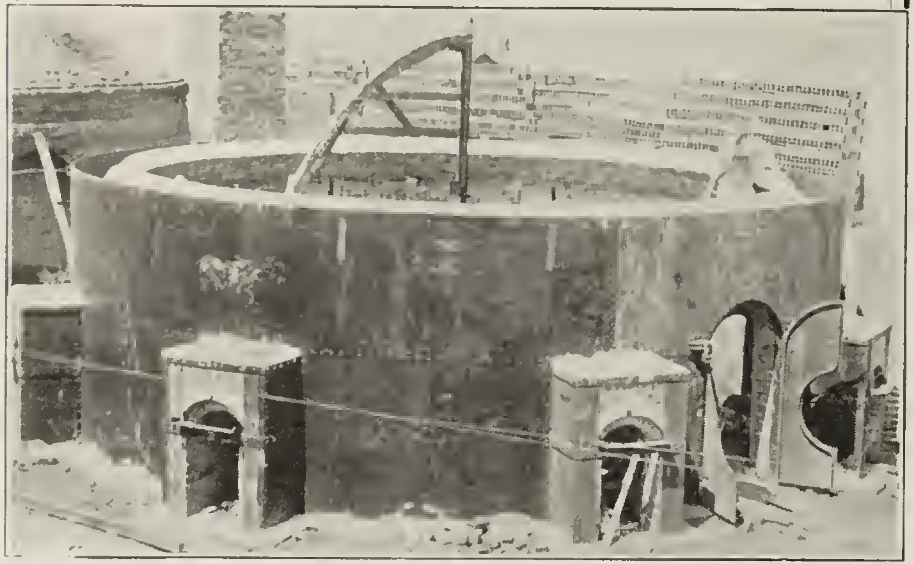

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GOOD BUSINESS

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The Iowa State Board of Control is considering the establishment of a brick plant at the Anamosa reformatory.

The tile factory at Keota, Ia., has resumed operations.

Negotiations have just been completed by the board of trade for the location at Estevan, Man., of a pottery and tile manufacturing plant in which Winnipeg capital is largely interested.

The Grinnell Brick and Tile Company, Grinnell, Ia., will furnish 24,000 tons of silo block during the year 1914 for delivery to Iowa points. This company has just closed contract for this material with the Kalamazoo Silo and Tank Company, of Kalamazoo, Mich.

The Murray Iron Works Company of Burlington, Ia., have bought the property formerly occupied by the McCosh Iron and Steel Works, which adjoins their Corliss engine works and gives them about ten contiguous acres in the heart of town besides the foundry property at West Burlington.

The brick and tile plant located at Grundy Center, Ia., is now owned by a Californian. This party purchased the plant from E. A. Carey, to whom Truman Fuller had previously sold his interest. Mr. Carey bought out the other stockholders and traded off the plant for land. It is not very likely that the plant will be put in operation this year.

New life was instilled into the former Webster City (Ia.) Brick and Tile Company when its big brick and tile plant resumed operations a short time ago under the management of the new Webster City Clay Products company. The plant starts off with a force of thirty-five men and seven kilns, the old plant having been renovated and rebuilt throughout.

The new plant of the Des Moines Clay Company, which was organized early this year by the merger of the Des Moines Clay Manufacturing Company, the Goodman, McCormick Company and the Acme Roofing Tile Company, Des Moines, Ia., commenced operating on May 18. This is the third plant now operated by that company in Des Moines. The new plant will manufacture only high grade common brick and hollow building block and will have a daily capacity of 60,000 to 70,000 common brick or 20,000 hollow blocks when running full force. The shale pit and mine are located at Morgan Valley twelve miles southeast of Des Moines. Electric power and the most modern machinery have been installed throughout the plant and fifty men will be employed at a monthly wage of about $3,000.

KANSAS.

A delay in the delivery of the machinery has held up the opening of a sand lime brick plant in Hutchinson, Kansas, the establishing of which has been under consideration for about a year. However, it is expected that the delayed machinery will arrive about the last of June, when work will be started at once on the erection of the plant.

Twelve Kansas towns are making a vigorous protest before the Interstate Commerce Commission against the proposed increase in rate on brick from Kansas to points in Missouri and Iowa, from ten cents to twelve and one-half cents per hundred pounds. The brick manufacturers in Altoona, Fredonia, Gas, Tyro, Coffeyville, Cherryvale, Humboldt, Chanute, Neodesha, Veru, Buffsville and Caney, the towns affected, declare that they are making no profit under the present rate, and, that with the new advance, it would be impossible to exist, jeopardizing the welfare of these towns. A hearing lasting two days has taken place in Kansas City, Mo., Royal T. McKenna, attorney, representing the commission, and E. J. McVane, attorney for the commercial clubs of Omaha, Neb., and Council Bluffs, Ia., and A. E. Helm, attorney for the Kansas Utilities Commission, arguing the points in question. The result of this hearing will probably be known very shortly.

MAINE.

The brickyard at Skowhegan, Me., is anticipating a busy summer this year. Certain recent contracts, involving a large amount of brick work, will tax the capacity of this yard.

MASSACHUSETTS.

Bad weather is the only thing that has been holding back a big brick business in Worcester, Mass., this Spring. With the building operations already under way and those which will begin shortly, it is expected that with a clearing up of weather conditions, will come a brisk demand for brick.

MICHIGAN.

Bids will be received up to June 6 for the construction of a crock, trunk-line sewer in the village of Fenton, Mich. Ross McCurdy, village clerk.

The brick plant at Vulcan, Mich., will be operated on a more extensive scale than ever this season. A second machine of larger capacity is now being erected and preparations are being made for an early resumption of operations. This plant employs about one hundred men and it is expected that the output this season will exceed 3,000,000 brick.

The Michigan Sewer Pipe Co., of Jackson, Mich., secured the contract for furnishing all of the tile in connection with the Chandler drain, in Reading, Somerset township, which will be 600 rods in length and cost $2,113.

MINNESOTA.

The Fertile Tile and Brick Company, Fertile, Minn., is now running full force. This season's output is estimated at about five million brick.

Orders which the Fairmont Brick and Drain Tile Company, Fairmont, Minn., have now on hand will keep that concern operating for three months, is the report, and, if business keeps up the way it has been going, the coming season will set itself on record as a remarkably busy and prosperous one. A large force of men is now working under the direction of Joseph Eisenminger, who will have charge of the plant temporarily, and the company is preparing to increase this force soon to take care of the large amount of future business.

MISSOURI.

The Warrensburg, Mo., brick plant has started work with a full force of men. Already they have turned out a large number of brick and the managers expect to start the erection of two additional kilns shortly, which will increase their capacity to 50,000 brick a day.

The Knobnoster Brick and Tile Works has been purchased by C. A. Harrison, C. D. Middleton, J. Ed. Ridge and James B. Millar, of Warrensburg, Mo., for $50,000. This plant is one of the largest of its kind in the state and in addition to a plant with a capacity of 50,000 brick a day, the property includes 135 acres of coal land.

Fire completely destroyed the plant of the Shelbina Brick and Tile Works, Shelbina, Mo., recently. As the plant was not in operation at the time of the fire, it is not known just how it started. However, the loss is very heavy and the owners will probably make no effort at reorganization, unless a new company is formed, as the plant was not insured.

The opening of the new Vale Brick Company near Kansas City, Mo., has been postponed because of delay in the final details and also because of a slackening in demand for com-

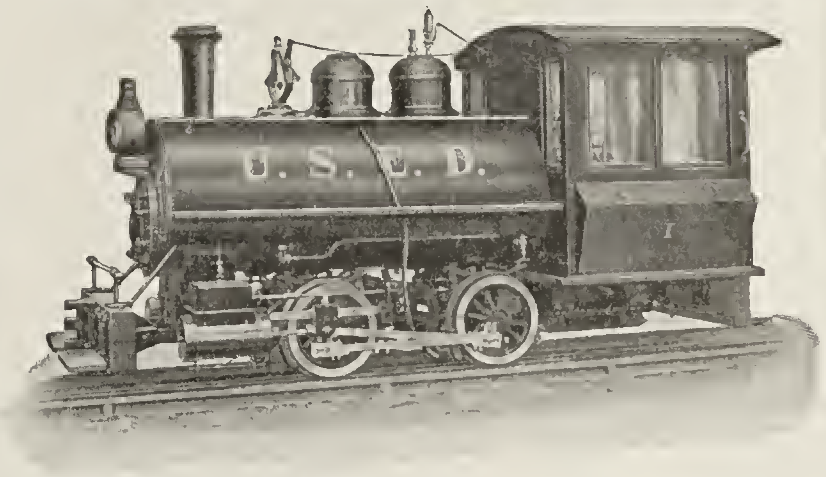
The Rust
Clay Feeder

Is a machine with a purpose. It is used not only for **efficiency** but for decided **economy**—saving you upwards of $500.00 a year in your clay plant. While it saves you real money it also permits a more uniform mixture of your material and therefore improves your product.

You may dispense with "something else" but not with The Rust Clay Feeder—it's **indispensable**. Shall we send you more evidence?

Marion Machine, Foundry & Supply Company
Box 395 **MARION, IND.**

CLAY HAULAGE
Reduce costs of transportation by using a
Davenport Industrial Locomotive



Small Size—Reasonable Cost—Especially built for use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Cheaper Than Horse Transportation

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways
Write us for particulars

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DAVENPORT, IOWA

Branch Offices
St. Louis: 654 Pierce Bldg.
New Orleans: 208 Godchaux Bldg.
Chicago: 12 and 14 So. Canal St.
Pittsburgh: 405 Oliver Bldg.
Seattle: 617 Western Ave.
Montreal: 286 St. James St.
St. Paul: 1308 Pioneer-Press Bldg.
Winnipeg: 45 Canadian Life Block
New York City: 362—50 Church St.
Vancouver: 175 Cordova St.

mon brick. The company will begin work in the not distant future, however, having about completed the finishing touches, which, as usual, caused the most difficulty.

Brick as a paving material received another boost from William Elbing, Highway Engineer of St. Louis County, Mo., recently. Mr. Ebing states that the rapidly increasing traffic makes it necessary to look to some other more permanent form of paving than macadam, which is becoming inadequate for this purpose and is greatly increasing the cost of maintenance of public highways. He strongly urges the use of brick as a durable and lasting pavement.

Spalding & Taylor, who recently leased the Doarn brick plant at Twenty-third and Fairmount, Kansas City, Mo., are meeting with a good deal of success in their venture. The plant is running to capacity, with a daily output of about 22,000 common. These brick men, who are making their first venture in this line, are delivering to enough jobs around the two Kansas cities to insure activity for some time to come.

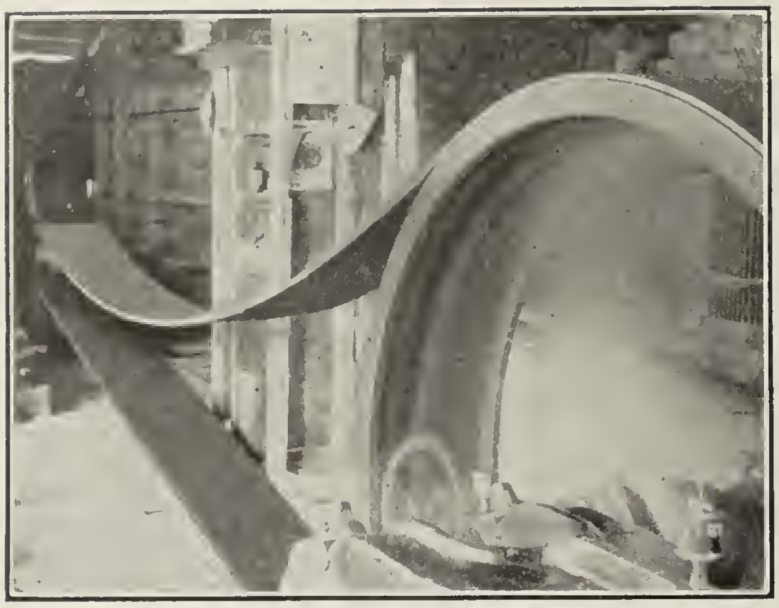
Brown Brothers, of Kansas City, whose bid for a sewer job of a good deal of importance was questioned by concrete sewer pipe manufacturers, were awarded the contract on May 25. Brown Brothers will use vitrified clay pipe in the work and bid with that material in view. The concrete pipe manufacturers alleged that unfair means had been used by sewer pipe manufacturers in financing the Brown Brothers. This contention was not backed up by the facts and the board of public works gave the contract to the lowest bidders.

The Kansas City (Mo.) branch of the Hydraulic Brick Company has had a highly favorable early summer business, delivering face brick to a number of big jobs. The company is handling face brick for the St. Regis hotel, which will require 160,000; the Central high school, which will take 400,000; the Karnes school with 240,000; and one or two other operations of importance. Manager A. J. Hazelton, however, is not inclined to express much optimism over summer prospects, believing that a tapering is probable.

Business in Kansas City, Mo., has been fair recently, most of the local brick men delivering to enough big jobs to make the past month size up well in comparison with others. The exceptions are one or two local agencies whose prices are out of line, the factories they represent refusing to meet quotations now in vogue. Prospects for the summer, however, are not flattering. Architects are finding things rather dull, after a good Spring. While a few big projects are still to be taken care of, mid-summer trade does not loom up as impressively large. The big wheat crop, however, almost insures an active Fall. In the meantime, all of the common brick plants in Kansas City are working at top speed.

The Western Paving Brick Manufacturers' Association, of Kansas City, Mo., has had an extremely good month in the way of promoting brick paving in the West and Southwest. Secretary George W. Thurston reported the following contracts promoted and awarded during the past fortnight: McKinney, Tex., 27,000 square yards of brick on May 27; Mound City, Mo., 11,000 yards of three-inch vertical fiber on May 29; Jonesboro, Ark., 10,000 yards of brick on June 1; Alexander, La., 36,000 yards three-inch vertical fiber on June 1; Lincoln, Neb., or University Place, 12,000 yards of brick on June 1; Mart, Tex., 20,000 yards on June 1; Atchison, Kan., 6,000 yards on June 1; Houston, Tex., 13,000 yards on June 1.

The paving of Sixth street, in Kansas City, Mo., from Broadway to Bluff streets, probably will be done in the near future. Creosote wood blocks, paving brick and stone blocks



Cling-Surface Effects Savings in More Ways Than You Can Imagine

Savings from the use of Cling-Surface pop up from many sources: Where belt slip is stopped without tightening belts and its attendant useless increase of bearing pressures, coal is saved in quantities, year in and year out, that pays for the Cling-Surface and its application dozens of times over. Cling-Surface treatment more than doubles or trebles the life of belts that otherwise are run tight, for the pliability and softness which it imparts to both interior and exterior, permit the belt to run slack with less slip than is present in a tight belt. A belt saturated with Cling-Surface and run slack is not subject to cracking, chafing, internal wear, and consequent short life, because both surface and interior remain moist. There is no slip, so there can't be surface burning, and as the internal fibers are lubricated, they can't get brittle and lose their strength. There is no necessity for taking up of belts at frequent intervals and hence no expensive time losses. Further, the bearings, not having to be overloaded with useless belt tensions, are protected from excessive heating and ruin.

The truth of these statements is forcibly emphasized in the following remarks of Mr. Jerry Lynch, 196 East 205th St., New York, a self-styled "Cling-Surface Bug," who was put in charge of M. P. Davis' plant, Niagara Falls, Ont., where belts were once run extremely tight.

"They burned out many sets of main bearings on those compressors. After Cling-Surface came, I asked them to allow the belts to go on without taking up, which they did. We cut the oil bill from five gallons a day to five gallons a week and once ran for over three months without stopping, and no trouble."

Mr. Lynch was there 25 months. During that time they needed *only one gallon* of Cling-Surface.

Ask anyone who is using Cling-Surface. Give Cling-Surface a trial or at least write for more information today.

Cling-Surface
the life preserver for belts

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1029 Niagara St Buffalo NY
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I am interested in Cling-Surface and your trial order proposition.

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Firm . . . .
Street . . . .
City . . . . State 61

were to be used, according to original plans. The thoroughfare, one of the most traveled in Kansas City, was to have made a test of the various materials, asphalt and concrete already having proved failures. The stone block people have now withdrawn from the agreement, leaving the field to the creosote block and paving brick manufacturers. The paving brick men probably will provide the major portion of the material, the city engineer having asked the Western Paving Brick Manufacturers' Association to bid on the streets to have been cared for by the stone block manufacturers.

The list of defendants in a suit recently filed in Kansas City closely resembles a roster of brick men operating in that city. The Hydraulic Press Brick Company, Dickey Clay Manufacturing Company, Coen Supply Company, and other brick and material men are named as defendants. The suit itself is a rather unusual one. The Hydraulic Press Brick Company's Kansas City branch delivered about 20,000 brick for an individual named Riley, who was building some cottages on the South side. The partly completed cottages burned one night, and the brick on the job disappeared. Riley also disappeared, and the Hydraulic and other supply men interested brought suit against him. Then a counter suit was filed to determine the equity of each company in the available assets. The suit is pending.

MONTANA.

Anaconda, Mont., is to have a brick yard just west of the city to the right of the Georgetown road. W. T. Hoskinson and O. Culture, who knows the brick business from the bottom up, are backing up this new enterprise and expect to turn out their first kiln of 100,000 red brick very shortly. About fifteen men are employed at the new plant.

NEW JERSEY.

The Old Bridge Tile and Enameled Brick Company, Old Bridge, N. J., has just closed one of the largest real estate deals reported in that locality for some years by purchasing the tract of land owned by the Brickfield Glass Company. A large number of the lots on this tract have been sold to employes of the tile works, with building restrictions to insure the construction of suitable houses.

"Help Us Increase Your Dividend," is the title of an attractive folder, enclosed with the last dividend check to the stockholders of the Trenton Potteries Company, manufacturing sanitary plumbing supplies, etc., at Trenton, N. J. This pamphlet includes several suggestions as to how the stockholders can co-operate with the management in pushing the sale of their products by telling friends and acquaintances about them and having these friends ask their architects to specify same and their plumber to install these products. It is said that this is the first time a clay-worker has tried this novel form of advertising, although the insurance companies, it seems, have been doing so for some time.

NEW YORK.

The brick-makers at Haverstraw, N. Y., have returned to work. The right to smoke while at work and twenty-five cents more per day was the subject of controversy.

R. G. Ward, (temporary address for a month, Herald Square Hotel, New York) wishes to get in touch with manufacturers of all kinds of brick and tile-making machinery with a view to building a plant at Buenos Aires, Argentina. His permanent address is the Plaza Hotel, Buenos Aires.

The outlook for a busy season at Mechanicsville, N. Y., is not quite as favorable as it was last year at this time. The New England Brick Company and the Mechanicsville Building Brick Company have not started up as yet, while the

The GANDY BELT IS WATER PROOF

EVERY Gandy Belt is saturated with a special compound of oils that renders it impervious to water, heat or steam.

One of our customers writes us that during the night the water in their wheel pit often rises enough to cover the lower portion of their 16 inch Gandy Belt, but that the belt continues unaffected by these adverse conditions, though it has been transmitting 70 H. P. for several years.

Gandy Belting costs but one-third as much as leather, much less than rubber, but it does the work equally well or better, especially under unfavorable conditions.

The severe conditions of the brick field are rendered less difficult by the use of Gandy Belting.

If you're not familiar with Gandy service send today for free sample, and testimony of a few of the thousands of enthusiastic Gandy users.

The Gandy Belting Co.
732 W. Pratt St.
Baltimore, Md.

New York Office
36 Warren St.

"Be a Booster"

"The Truth About the Wayne County Concrete Roads"

—By Paul E. Green, M. E.

If you have some new streets or country highways contemplated in YOUR city or community, and there is a likelihood that concrete will be considered as a paving material, stop this waste of the people's money by boosting for vitrified paving block, no matter if you do not make pavers.

You are a clayworker and should work for burned clay no matter what form it may be.

Clayworkers, Use this Book to Fight Concrete

Paul E. Green is a member of the American Engineering Society and was employed by certain taxpayers of Highland Park, Ill., to investigate the famous Wayne County roads before they decided on concrete for proposed street improvements.

Mr. Green made an exhaustive report showing actual conditions and giving full data on these "perfect" concrete roads. His report was published in full in the Oct. 7, 1913, issue of "Brick and Clay Record." We have reprinted the report in pamphlet form for popular distribution.

Show a Co-operative Spirit in Your Locality

See that every taxpayer gets a copy of this pamphlet. We have printed them in a convenient and attractive form for distribution and offer them in any quantity at $20 per 1000, which barely covers the cost of printing. Smaller lots at $2.50 per 100. Sample copies free. Send for a copy if you missed the article in the October 7 issue of this magazine.

Brick and Clay Record

445 Plymouth Court, Chicago

Duffney Brick Company and the Champlain Brick Company are filling orders taken some months ago for future delivery, with new orders coming in slowly.

Plans and specifications for a sixteen-foot brick pavement laid on a concrete base, have been prepared by the State for the paving of Division Street west from Lake Street to Grand Central Avenue and north on that street to the city limits, Elmira, N. Y. As soon as these plans and specifications have been approved by the proper state and municipal authorities, bids will be requested and the work let. The city has the option of making this pavement wider, if desired, the cost over and above the sixteen feet, to be paid for by the city.

Hamilton Street, Geneva, N. Y., is to be paved with brick or nothing, according to John N. Carlisle, New York State Commissioner of Highways, who is on a tour over the state in an automobile. The Highway Commissioner stopped off at Geneva and had a conference with local officials relative to having preliminaries rushed so that this work could be included with other jobs that the State will let in June. It was during the conference that the Commissioner came out in a positive stand for brick as the paving material.

The brick yards at Coeymans, N. Y., will soon be in the midst of a busy season. The Sutton and Suderley company and the Roah Hook company have resumed activities. The Sutton and Sinsabaugh yards, which have not been working for some time and the Corwin and McCulloch, who have retired from business this season, have changed ownership and will be under the management of A. J. Gorson of Haverstraw. Owing to this change, it is expected that the output this year will be larger than ever, there being twenty-eight machines turning out over 500,000 brick a day.

Prevost Hubbard, Assoc. Am. Soc. C. E., in charge of Division of Roads and Pavements, the Institute of Industrial Research, Washington, and lecturer on highway engineering chemistry at Columbia University, New York City, and Arthur H. Blanchard, M. Am. Soc. C. E., consulting highway engineer and professor in charge of the graduate course in highway engineering at Columbia University, have been elected by the Council of the International Association for Testing Materials the American members of Commission No. 58 on "Standardization of Methods of Testing and Nomenclature of Road and Paving Materials."

NORTH CAROLINA.

The Shale Clay Brick & Tile Company is erecting buildings at Hot Springs, N. C., for a plant to have an initial daily capacity of 30,000 common building and face brick, and will later add tile, fireproofing, etc., to its products.

A charter was granted April 15, to the Tuckaseigee Clay & Mica Company, of Bryson City, N. C. C. J. and J. M. Hand paid in $1,500 out of the $15,000 authorized capital.

OHIO.

The Hall Brick Yard, at Tiffin, Ohio, has been sold to Karl J. Heilman and William L. Lehne.

The Homer Laughlin China Company, of East Liverpool, Ohio, has reduced its capital stock from $500,000 to $100,000.

The commissioners of the new city hall to be erected in Norwood, Ohio, which will cost in the neighborhood of $100,000, have let the contract for the brick, fireproofing material, hollow tile and terra cotta involved in the building, to Robert Fuerst, of Cincinnati.

The Moberly Paving Brick Co., of Canton, Ohio, has increased its capitalization from $300,000 to $600,000.

The Union Coal & Fire Clay Company, of Dennison, Ohio, has been incorporated with a capital of $10,000 to deal in shale, limestone and coal. The incorporators are: George S. McCaw, Robert Maxwell, W. D. E. Evans, C. A. O'Donnell and Wm. M. Hill.

The Lindsey Brick and Tile Company, Lindsey, O., a newly incorporated concern, has bought the tile plant formerly owned by the German Banking Company of Lindsey and installed new machinery throughout the works. The plant has begun operations. Benjamin Burkett, C. C. Boyer, A. C. Franks, G. I. Johnson and J. A. Farnutzer are heavily interested.

The porcelain plant at New Lexington, Ohio, which has been idle for some time, will be started up again shortly by the Consumers Insulator Company, a new corporation, capitalized at $50,000. High voltage porcelain insulators will be made. The incorporators are: L. E. Holderman, George H. Barnes, M. L. Holderman, G. E. Holcomb, and John McCarron.

The sale of the brick plant of the Oakland Pressed Brick Company, Zanesvile, O., together with thirty acres of clay and shale lands has been noted among other news items. The plant is prepared to manufacture plain and ornamental brick, including face and paving brick, at the ate of 30,000 a day. The fuel supply is near and the property is located on the National Pike, which it is expected will be paved within the next two years between Zanesville and Wheeling a distance of eighty miles.

Some trouble was caused in the Shawnee brick manufacturing district in Ohio recently when the clay miners employed by one of the companies asked the company to sign waivers that they would not insure their employes in the State liability board of award. This the company was unable to do because of the compulsory nature of the law. After several days of idleness the men went back to work and J. M. Roan, safety superintendent attached to the Ohio Industrial Commission, was called in to mediate.

Ralph Coney, of the Moores-Coney Co., one of the leading building supply concerns in Cincinnati, Ohio, is slowly recovering from an assault made on him recently by a teamster employed by the company. At first it was feared that Mr. Coney had sustained a fracture of the skull, and his life was despaired of, but it is now certain that he will pull through, in the absence of complications. The company, as usual, is handling an active business, and recently added to its facilities by completing a large and handsome display room in the St. Paul building, where all of its lines are now represented.

The Kirchner Brick Company, of Cincinnati, Ohio, which recently was organized to succeed the Kirchner Construction Company in the operation of the latter concern's brick plant at Fultenham, Ohio, now has the plant in full blast, and is turning out in the neighborhood of 50,000 high-grade face brick a day. Officers of the company report that business has been excellent despite the adverse labor conditions existing in Cincinnati, and that a good distribution is being gained in other cities. At present the company turns out only two varieties of brick, but expects to add to its list as the business developes. Offices and show-rooms are located in the Mercantile building, Cincinnati, in charge of Messrs. DeArmond and Garlick, who are interested in the company.

State Mining Commissioner John M. Roan, of Ohio, has within the past two months effected the settlement of two more or less serious strikes in the clay fields by adjusting the differences between the men and their employers. The first was that of the clay miners in Shawnee, Perry county, Ohio,

Let a Cooling Kiln Dry Your Wares

USE ALL YOUR WASTE HEAT

¶ Put the exhaust steam from your power plant to work, call on your boiler gases to help. One dollar saved in your drying means two dollars gained in your profits.

¶ Americans waste more than they use — they have failed to take advantage of dollars that go up in smoke — the ungathered profits that are wheeled into the dump, and the brickmaker is no exception.

¶ Why build a fire to dry your brick when you have one under your boiler and in your kiln?

Sturtevant
(REG. U. S. PAT. OFF.)

Drying System

¶ This method of drying is a scientific method and it has as its basic principal — efficiency.

¶ Air is drawn through the cooling kiln — is mixed with the air outside and is used in the dryer.

¶ Anything more simple — anything more economical?

Sturtevant
(REG. U. S. PAT. OFF.)

Mechanical Draft System

¶ By the use of this auxiliary system your dryer efficiency is increased, a better product produced and dollars go into your pocket that once got lost in the dryer.

¶ The manipulation of the draft and the application of the heated air is what makes perfect ware.

¶ The Sturtevant System lends itself to positive control.

¶ The most tender clay may be handled with the delicacy it demands.

¶ The toughest clay may be rushed through at lightning speed.

¶ And the Sturtevant, with its fans, engines, heater coils, cars and other accessroies, costs no more than other dryers which have none of these features.

¶ The purchaser buys apparatus — not royalties.

We have a little book — **Bulletin 202-S**, which tells all about waste heat drying and the why and the how of it. We will be glad to send you a copy for the asking.

WHEN YOU WRITE TELL US THESE THINGS:

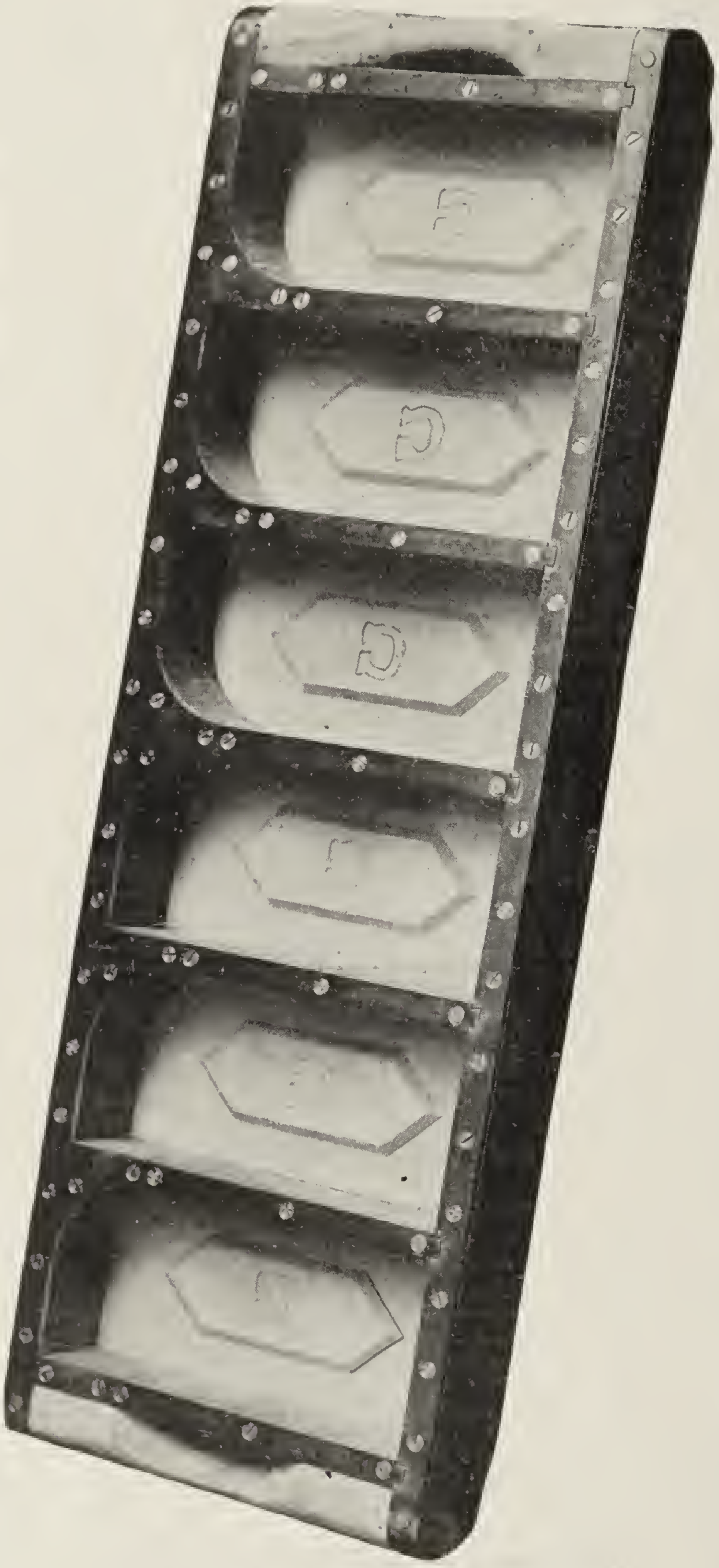
What is your product? What sort of process do you use — stiff mud; or soft mud; shale or fire clay; plastic or open clay? What is your product used for — if brick state whether end or side cut. What is your total output per day? How many hours per day will your drier run? How much water has to be dried out per hour? Is your material sensitive to heat or air? What kind of kiln do you use — how much time is consumed in burning? Have you exhaust steam — how much and for how long a time? What is number of boilers — size — steam pressure? What kind of coal used — what is cost per ton?

B. F. Sturtevant Company
Hyde Park, Boston, Massachusetts
AND ALL PRINCIPAL CITIES OF THE WORLD

BRICK & CLAY RECORD

Machine and Hand Brick Moulds

of Every Description



Write for Detailed Description and Prices

The G. B. Mentz Co.

America's Foremost Mould Makers

Wallkill, N. Y.

and vicinity, which had been in progress since January 1. This strike was settled about April 18. Only a few days ago Mr. Roan induced representatives of clay miners and officials of the Iron Clay Brick Co., at Rock Run, near New Straitsville, Ohio, to sign a wage scale under which the men will receive 29½ cents a ton for clay when drilling is done with electrically-operated machinery, and this settled the incipient strike growing out of the wage dispute.

Clay and other manufacturers are interested in a decision recently rendered in Cincinnati, Ohio, by one of the judges to the effect that occupational diseases, which is the name applied to ailments resulting from work in a trade, are "personal injuries" within the meaning of the Ohio workmen's compensation act, and that employes suffering from such ailments contracted in the course of their employment are, therefore, entitled to compensation under the law. The case arose on the claim of a Cincinnati employe of the Eagle White Lead Co. who had contracted lead poisoning and who sued the Industrial Commission on its refusal to pay him out of the compensation fund during his incapacity. The case is the first which has arisen in this way—that is, on a direct claim and suit against the commission—and it is fairly certain that it will be taken to the Supreme Court, in order that the point may be authoritatively settled.

The board of directors of the Cincinnati (Ohio) Chamber of Commerce recently indorsed the action of the legislative committee of that body in its protest against the Clayton bill, insofar as it contemplates the elimination of exclusive sales agencies for manufacturers. The board points out that such legislation would rather encourage than prevent monopoly, inasmuch as it would give a practical "cinch" on the trade to large concerns able to maintain their own branches, shutting out the small manufacturer who has heretofore marketed his goods through agency connection. Brick and other clay men are deeply interested in the proposed legislation, and local representatives of the trade are strongly in favor of the action taken by the Chamber of Commerce, for the reasons indicated. Building-material men, most of whom have exclusive agencies for various lines of brick, fire-proofing, hollow-tile and terra-cotta, are especially emphatic in their opposition to the bill's provisions on this point, as they declare it would mean the ruin of their business.

PENNSYLVANIA.

Brick will be the material used for the paving of Beech Street, Warren, Pa.

The new plant of the Paxton Pressed Brick Company, Harrisburg, Pa., has started to manufacture brick. This plant will be equipped with motors and other modern machinery, the power for which is obtained from the Light and Power Company of Harrisburg.

"Tapestry" brick has been specified in the new $2,000,000 fireproof institutional building that is to be built in Pittsburgh, Pa., by the Western Theological Seminary. The work will include a class room, chapel, library and administration offices.

The Kutztown Brick Mfg. Co., of Reading, Pa., has resumed operations for the season, under the management of John Bieber. Building and face brick are being made and a number of contracts for furnishing brick to large buildings have already been booked.

We are pleased to note that S. B. Dobbs, of Philadelphia, Pa., has just closed an order for 700,000 standard size salt glazed brick for the high school building to be built in Germantown, the plans for which were drawn by Horace Cook, City Architect. It is stated that this is one of the largest orders for salt glazed brick ever placed in this city.

Contracts have been let by the Fayette County commissioners for the brick to be used in the construction of the Georges township roads. The cost of the brick for the two roads will be $28,000. The United Fire Brick Company, of Uniontown, Pa., was given the contract for furnishing the brick at $17.60 per thousand. Over 800,000 brick will be required for the construction of this road.

The extensive plant in Kane, Pa., of the Johnsonburg Vitrified Brick Company, which has not been in operation during the past four years, was sold Monday, May 18, to A. M. Broadhead Company of Jamestown, N. Y. The plant was purchased from the Emerson & Gray Company of Boston, Mass. Repairs and improvements will begin within two weeks and it is expected the plant will be ready for active operations in about three months, giving employment to 75 men. The property in all comprises about 121 acres.

QUEBEC.

J. N. Greenshields, president of the National Brick Company, Ltd., of Laprairie, Canada, in the annual stockholders meeting, called attention to the improvement in the building situation. He stated that, while orders for the first month of the new year were largely in excess of those received for the corresponding period last year, business has not been as brisk during the past few months. However, this has not entailed as great a loss as might seem at first sight, because of the high efficiency and consequent low cost of production secured from the company's organization and manufacturing plant. A decided improvement, however, is to be noticed in the market and the firm looks forward to a substantial business this year. A financial statement submitted at this meeting showed a net profit of $119,831 for the past year, and, after paying four quarterly dividends, a surplus of $19,831 was left.

TENNESSEE.

The incorporation of the Bristol Brick Company, of Bristol, Sullivan Co., Tenn., is noted. Capital is $25,000. Incorporators, S. M. Mitchell, Jos. A. Caldwell, J. H. Fleming, H. W. Reynolds and Guy Darst.

TEXAS.

The Brown Brick Company of Dallas, Texas, has been incorporated with a capital of $5,000. G. C. Brown, E. D. Brown and Octavia Brown are the incorporators.

The Athens Pottery, of Athens, Texas, will erect a plant with a daily capacity of 40,000 brick.

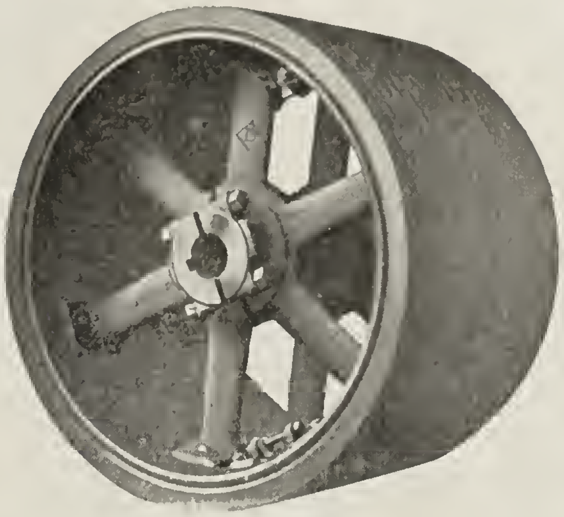
Work on the construction of the new brick plant at Comanche, Tex., is progressing rapidly. All of the machinery has arrived and been placed in position, and officials state that they expect to be ready for business about July 1st.

A stock company has been organized at Ferris, Texas, known as the Cole Press Brick Company. The new company has a capital of $42,000 and will soon begin the erection of a brick plant in that city.

Alois Wensle and Franz Eunseive, representing a German corporation operating pressed brick plants in Germany, Canada and Cuba, have been in communication with the Houston (Tex.) Board of Trade, looking to the starting of a brick plant in that city, where both sand-lime and clay brick will be made.

The machinery is now being installed for the new brick plant to be located at San Marcos, Tex., which, the owners fondly hope, will revolutionize the brick industry in that

DODGE



Dodge Iron Center Wood Rim Pulley

For Heavy and Shock Loads, High and Absolute Speeds

THE Dodge Iron Center Wood Rim Pulley is made in both solid and split types; and is adapted for these conditions and service:

Heavy loads as in the case of receiving pulleys on large engine drives. The heavy iron arms and hubs give a rigidity to the construction which makes the pulley able to take care of any strains which can be put upon it by a belt for which it was designed.

Shock loads such as would be encountered in driving of crushers and other similar machinery.

The internal shrinkage strains which are necessarily always present to a greater or less degree in all iron pulleys, are entirely eliminated in the construction of an Iron Center Wood Rim Pulley.

There is, therefore, less liability of breakage when the pulleys are used in driving machinery subject to severe shocks and jump loads, the effect of the shock being absorbed within the structure of the pulley without injury.

High speeds, such as motor and generator pulleys.

The wood rim being both bored and turned, puts the rim in almost a perfect state of balance, and as the wood rim is very much lighter in weight than an iron rim, it is possible to run the pulley at a rim speed very much greater than would ever be possible with an all iron pulley.

Maintenance of absolute speeds. The tractive pull of a leather belt upon a wood rim is much greater than it is upon any metallic rim. This minimizes the belt slippage, as is necessary to maintain such absolute speeds.

In sum and substance this pulley is made in any size, for any speeds and for any conditions of service for which a leather belt can be used. A short time ago we made a test of its speed possibilities for a customer and developed five and one-half miles per minute. So remarkable was the showing that we arranged the experiment in book form with illustrations. It makes interesting reading and you ought to have it. **Free for the request.**

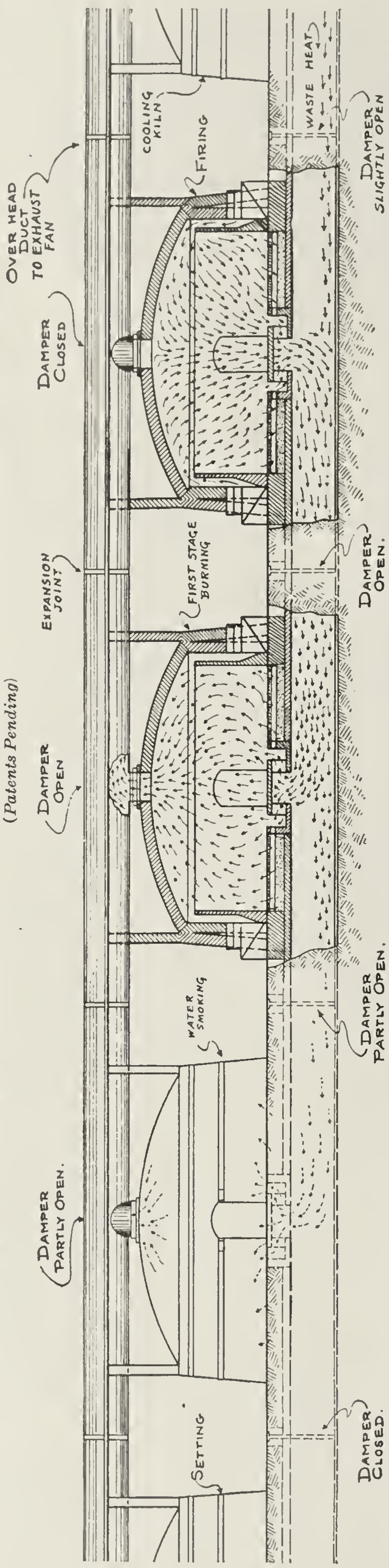
Dodge Manufacturing Company

Power Transmission Machinery for Clay Working Plants
Office and Works: MISHAWAKA, INDIANA

Philadelphia, 315 Arch St.
Boston, 137-139 Purchase St.
Cincinnati, 126-128 W. Third St.
Atlanta, 28 S. Forsyth St.
Pittsburgh, 337 Second Avenue
Grand Rapids, 321 Bond Ave.
Chicago, 308-314 S. Clinton St.
New York, 21 Murray St.
Minneapolis, 100 N. Third St.
Indianapolis, Merchants Bk. Bldg.
St. Louis, 408 N. Fourth St.
Dallas, Tex., Busch Bldg.

THE SCHAFFER SEMI-CONTINUOUS KILN SYSTEM

(Patents Pending)



The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000 per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

country. The brick to be manufactured at this plant will be composed of one part cement to six parts sand and will be made with special machinery giving 80,000 pounds pressure to the square inch. The brick will be finished in marble, granite and quartz, and will be almost waterproof. Where did you hear that noise before?

It is rumored that a large pottery concern is to locate in Dallas, Tex., in the near future. A premature announcement of this project was made before the Board of City Commissioners, Dallas, During a hearing relative to closing a part of Locust Street from the Terminal Railway tracks to Ask Lane, it being stated that the pottery concern had agreed to take the site on the street thus vacated. It had not been the intention to make any announcement of this new industry, but the filing of a protest against the closing of the street, made such a declaration necessary. The name of the concern involved could not be secured.

VERMONT.

The Drury Brick and Tile Company, Essex Junction, Vt., has been making extensive improvements on its plant, having installed a new outfit, consisting of brick machine, crusher and pulverizer. This machine increases the output of the plant to about 90,000 brick a day.

VIRGINIA.

The sea sand on the Cape, at Henry, Va., is being used in the manufacture of a sand-lime brick. It is necessary to pass this sand, which is white in color, through a grinding process in order to re-sharpen the particles to make them suitable for the manufacture of brick. By the use of the latest labor-saving machinery, the plant has already utilized thousands of tons from the five or ten acres about it, but the supply seems inexhaustible, for it is estimated that there are at least 1,000,000,000,000 tons on the cape.

A new brick plant is to be established at Fredericksburg, Va., on Chappawamsic Creek. The exceptionally fine clay deposits in this region, said to be forty feet deep, are especially adapted to the manufacture of brick and tile and the party who is backing this enterprise realized the advantages to be gained through the location of a brick plant at Fredericksburg, as brick can be placed in Washington from this point by water at a cost of only thirty cents per thousand. In addition to Washington shipments, this concern will have a market for its products in Fredericksburg.

WASHINGTON.

The Spokane Pressed Brick Company of Spokane, Wash., will reopen its plant at Mead, Wash., shortly, after having been closed down since last Fall. The outlook for a good season, especially in sand lime brick, is bright.

Prosperity has struck the Winlock Brick and Tile Company, Winlock, Wash., under the management of George Daniels. This firm is doing a rapidly growing business and is adding materially to its payroll.

The Denny-Renton Clay and Coal Company has succeeded in securing a contract from the San Francisco (Cal.) Board of Public Works for 300,000 vitrified paving brick to be used along the car tracks on Van Ness Avenue, of that city, through its ability to promise quick delivery. Owing to some difficulty with the material originally planned for and desiring to avoid any further delay, the Board had practically decided to use basalt blocks for this work, but on May 19th, the Denny-Renton people offered to get the needed brick to

San Francisco from their Seattle plant within six days, or by May 25th and it was with this understanding that they were given the contract.

Hidden Brothers brick yard, located on Main Street between Fourteenth and Sixteenth Streets, Vancouver, Wash., which has been idle since last Fall, has started operations for the Summer. They will employ fifteen men, producing about twenty thousand common brick daily, which is sold locally and on the Portland market.

The Chehalis Brick and Tile Company, Chehalis, Wash., is now able to turn out 16,000 brick daily, having increased its equipment. The drain tile department has a capacity of 10,000 lineal feet of three to eight-inch tile per day. In addition to these improvements, one Klose semi-continuous kiln of seven chambers, the draft of which is supplied by a motor-driven fan; a thirty-foot down-draft kiln; a four-track standard dry-kiln heated by steam pipes; and a boiler and engine of larger capacity are to be installed during this year.

The American Fire Brick Company of Spokane and Mica, Wash., has fitted up new and attractive offices and display rooms at 11 West Washington Street, Spokane, where actual specimens of the company's product as used in construction, can be seen. These people are planning to operate their entire plant, including a large clam-shell digger and pump, with electricity, and to this end have installed a new engine and dynamo. They are also planning to secure an electric locomotive for their 3,000 feet of railroad.

WEST VIRGINIA.

Shirley Ruffner, of Iaeger, W. Va., is about to build a brickmaking plant at Huntington, W. Va.

What is claimed to be a thick vein of fine fire clay has been discovered on the land of the Hecla Development Company, of Huntington, W. Va., and it is probable that the company will develop the property. F. B. Enslow, of Huntington, is a large holder in the Hecla corporation.

WYOMING.

The Sheridan Press Brick and Tile Company, Sheridan, Wyo., has repaired and overhauled its plant and machinery after a disastrous fire a little over a month ago and is now ready for business. The installation of electric power and other improvements puts this concern in better shape than ever before to handle its products.

Pottery

Western pottery manufacturers who are identified with the United States Potters' Association, after hearing the report from New York of the possibility of the association being investigated by the Federal Grand Jury are saying to themselves, "We should worry." If there ever was an association or body of manufacturers which has open books, it is the manufacturing potters. If it was not for dealing with the labor phase of the industry annually, it is likely that the association would have little use for showing any life at all.

Reports also coming from the East allege that the whole proposition is one that has a direct bearing upon the tariff. It is a known fact today among manufacturers, retail buyers and consumers that pottery and china is not one cent cheaper today than it was before the tariff on

Gearing for Double Blungers

Gears

for

Brick-Making Machinery

Nuttall Gears meet the severe conditions imposed upon gearing in the Brick and Clay Industry, and give

Long Life

and

Reliable Operation

A correct gear to meet your most exacting requirements can be supplied.

Forward the attached Coupon.
Address Dept. B.

Nuttall
Pittsburgh

World's
Largest Gear Works

R.D.
Nuttall
Company
Pittsburgh, Pa.

We would like to know more about your gears for Brick and Clay Machinery. (CHECK)
Our service is normal
Our service is severe
Address.............................
....

these lines was reduced. It is also pointed out that the foreign manufacturer and workman, to say nothing about the transportation companies, laughed at the whole tariff proposition, so far as these lines were concerned. After the tariff was lowered, the foreign producer of clay was compelled to pay his workmen more wages. Then the selling price of clay was increased, and, then on top of this the ocean freight was advanced, so that what saving was expected under the reduced tariff has been taken in by those "on the other side."

It is also openly asserted that the importers of this country have not materially reduced the cost of their goods to the retail dealer, and the latter has not put any reduced selling tags or stickers on the ware when it is displayed for sale at retail.

W. E. Wells, chairman of the Labor Committee of the United States Potters' Association and secretary of the Homer Laughlin China Co., at East Liverpool, O., and Newell, W. Va., when hearing of the report from New York declared that the Potters' Association had nothing to fear. It is also known that the representatives of the Federal Government when they were probing the domestic pottery industry last year, were in a position to know every inside detail connected with the Association, and at the time it was admitted that there was no combination—except on the part of the workers, who were banded together in a labor union, and that all received the same wage. There are no two potteries in the country that have the same selling list, yet it has been pointed out time and again that the cost of making ware is about the same in one plant as in another.

Prize Problems

A Series of Problems That Are Submitted to Our Readers and a Reward Given for the Most Practical Solution

In the December 2, 1913, issue, "Brick and Clay Record" inaugurated a "Prize Problem" contest, in which a three years' subscription was given for the best answer to each problem. This concludes the series.

The prize winner in this, the last of the problem contests, signs his letter M. D. B., and asks that his full name and address be withheld. The problem was:

PROBLEM NO. 10.

What would you do if you found that the expense accounts of your salesmen were increasing, without a corresponding increase in the profits you were able to make on the material they were selling? It is understood that you have every confidence in their individual integrity and believe them when they state that the "high cost of living" has been extended to the legitimate expenses that they are compelled to meet in the way of hotel and livery bills, entertaining customers and the like. If the salaries you paid them were as high as you could afford and as low as they were willing to work for, what would you do to meet the growing deficit in your profits caused by the increasing amount of "traveling expenses?"

His solution follows:

The great problem of the manufacturer of today is the disproportionate advance in cost, to the possible advance in selling price.

Labor, raw material, supplies and fuel are all going up, and there is no doubt but that the cost of living makes

The
Gerlock Iron
Dumping Table

Reduces green Brick Loss.

Increases Output.

Hundreds in use.
Satisfaction guaranteed.

Descriptive circular and prices furnished on request.

H. W. GERLOCK
HUNTINGDON - PA.

the salary account higher. Office help must be changed frequently, with a corresponding reduction in the efficiency that comes of familiarity with the trade, the system and the limitations of the business, or a yearly advance in salaries is necessary.

The man whose "problem" is under discussion intimates that he cannot meet these increases by raising his selling price, and so maintain his margin.

Facing, as he does, a seemingly impregnable wall of set price, caused, the writer presumes, by competition, he has no escape from failure other than the reduction of his costs, one of which seems to be that of selling.

Perhaps he is paying too much attention to this selling cost and too little to the other cost items of his business.

Perhaps he is just beginning to look into his costs, and, because the salesmen's expense accounts are in "big figures," he is inclined to "save at the spigot" while there is a great waste at the bunghole.

Any movement he may make toward a sensible economy is praiseworthy. He is the "captain of the ship" in his own plant, and if it be wrecked, he alone will bear the brunt of the blame.

On the other hand, a too strenuous economy applied in one department may stop the efficacy of reforms in all others, particularly when applied to the sales department, in which failure means the choking of the whole plant.

My solution is—profit sharing. The fact that this manufacturer has so much "confidence in the integrity" of his selling force indicates that it has been with him a long time. The men in it must be interested in the welfare of the concern. They ought to be willing to listen, unselfishly, to the troubles of the manufacturer.

No great improvement is effected without some investment.

Send for an efficiency expert—pay him a fair price to determine what each item of expense really is, and whether it is earning its salt. Let his figures show the increased cost, compared with the decreased profit. The fact that he will not be deterred by a vast knowledge of what cannot be done, may lead him to show what can be done.

Have him set a figure per unit of goods or per dollar of margin that selling has cost and should cost. Have him at the meeting with the sales force and let him give these figures dispassionately.

Let him state positively, that, based on the figures he has found, Salesman "A" cost the concern, in salary and expenses, in the one, two or three years previous, so much per unit of goods or profit. The same with Salesman "B" and so on.

Let him state, positively, that this selling expense is so great that it is endangering the firm's capital and that, if continued, it will put the firm out of business and the salesmen out of their jobs.

Let him arrange a plan whereby the salesmen understand that another, new and proper unit basis is to be put into effect. Against this, every cent paid each salesman, either in salary or expenses, will be charged. Have it understood that the firm believes "salary and expenses" are a single item, and that the man who has a large expense account is drawing against his own profits.

Arrange matters so that the unit figure will be applied to all sales made by each salesman, and a lump sum given him at the end of each year, made up of the gross sales made by him at the unit figure, less any amount he may have drawn as salary or expenses.

Let the light into your salary accounts. Let each salesman know what the other salesman is receiving. The high salaried man will see that he has to "get busy" or the lower salaried men will "show him up." The lower salaried man will feel that he has something to look forward to.

Uproot your personal prejudices. A sale is worth just as much to you if made by Jones as if it were made by Smith. No matter how long Smith has been with you, he is worth no more to you than Jones, unless he earns more for you.

"But this is not profit-sharing" you say?

No, it is not. But it provides a way. Remember, your efficiency expert, or cost accountant has set a unit figure based on several years' cost, which, by your own admission, averages less than what you are now paying. You are not worried over your present cost—it is the "con-

TEAR OFF HERE

Use This Coupon Today

Brick and Clay Record,
Chicago, Ill.

Gentlemen:—We are interested in the possible use of advertising space in your Reciprocal Clay Products Advertising Section appearing on pages 1315-1326 of this issue of "Brick and Clay Record" and would like to have you tell us, without obligation on our part, the cost of an 1/8 page card therein.

Yours very truly,

....
Name

....
City

....
State

$5 for an Idea—

You Can Write it in Twenty Words

Do you know some short cut to manufacturing efficiency? Have you devised a simple contrivance that lessens labor and improves your product? Have you a new wrinkle that helps your men or your fellow workers or that brings a profit to your employer?

If you have a suggestion of any sort that would be of benefit to a fellow workman, write it out in twenty words or more—one hundred should be ample, and send it to "Brick and Clay Record." We want it.

Brick and Clay Record Pays for Suggestions

We pay $1 for every suggestion sent us and used in "The Superintendent's" Department, and the best suggestion receives a special prize of $5 each issue.

Have you a way of doing something that is different from the other fellow? Send it to us.

Have you a device that adds to the efficiency of your machine? Send it to us.

Have you a suggestion that improves the quality of your wares? Send it to us.

We Pay $1 for Every Suggestion That We Print

We are striving to make "The Superintendent's" Department of great practical value to our readers and we want you to help us. This department is intended as a symposium of ideas. It should bristle with useful tips and suggestions. Read it yourself. You may receive some little idea thereby that will be of great assistance to you. In exchange for the good that you receive contribute something for your fellow workmen.

Write your suggestions on one side of the paper—in ink and the shorter the better. Address it to "The Superintendent, 'Brick and Clay Record.'" Be sure to sign your name and give your address, so we will know where to send the check.

Brick and Clay Record
CHICAGO

stantly increasing" cost that is your problem. Between that lower average cost and your present cost there is a margin of safety. Give the greater part of it to your men.

Tell them that a certain volume of sales is necessary to keep the department on a paying basis. That if it falls below that, one or more men—the ones whose sales are pulling down the average, will have to go. And add that in the ratio of the increased amount of sales over the volume which you have set as necessary to the profitable conduct of the sales department, an increased bonus be given them, based on the work of the department as a whole. Fix this bonus at at least half of what the increased sales mean to you in decreased overhead.

Then begin to look at other departments—in the saving you will make there will lie a great part of the profit you will reap from the more efficient and economical conduct of your selling force.

Another solution, which is entitled to a great deal of consideration, has been received from E. Rainey, of Peoria, Ill. It follows:

I would figure out what I could really afford to pay per thousand to have my brick sold.

I would then call my salesmen in, put the proposition up to them on a strictly commission basis, tell them I could afford to pay that much per thousand and no more, and then if they couldn't sell them I would try someone else, no matter what my present opinion of them was.

I would then take the money they had been charging up to the expense of entertaining customers and have small books printed, showing all the different qualities of my brick, how they were made, what they were made of, and why they should use brick instead of any other material. Have the salesmen pass a prospective buyer one of these pamphlets instead of a cigar. The man who is going to build studies long and hard on the material to use. What better argument could you put up to him than the picture of a nice brick or the picture of a nice brick house?

Standardizing Catalogue Sizes.

Some time since, "Brick & Clay Record" published an article on the folly and wastefulness of issuing catalogues that, from their size, were difficult to file. The difficulty of the architect, who wanted to preserve the carefully tabulated information, but who was prevented, through not having the right size filing cabinet, was fully described. "Construction News" publishes another article on the same subject, which deserves the attention of every manufacturer who proposes to spend money on a catalogue. The article follows:

The inconvenience of filing for purposes of reference catalogues of all sizes and shapes has prompted the Technical Publicity Association, whose membership comprises the advertising managers of many of the largest business houses in the country, to start a campaign for uniform sizes in catalogues, definite proposals having been prepared by the association, which will be sent out this week to all of the leading manufacturers, wholesalers and retailers.

The chief recommendation is that two sizes be adopted as the standards for all catalogues, 6 by 9 inches and 8½ by 11 inches. It is argued that if every house that issues a catalogue will have it made up in one of these sizes, it can then be filed for reference with hundreds of other catalogues by any one receiving it. At present, as the Technical Association's circular points out, because of their varying sizes, catalogues unnecessarily take up valuable space, and cannot be filed and indexed in any way that will make reference to them easy.

The plan to standardize the catalogues has met with the approval of many advertising and catalogue men associated with large manufacturing firms. The chief of the catalogue department in one firm said yesterday that there was every reason for the adoption of the idea and none against it.

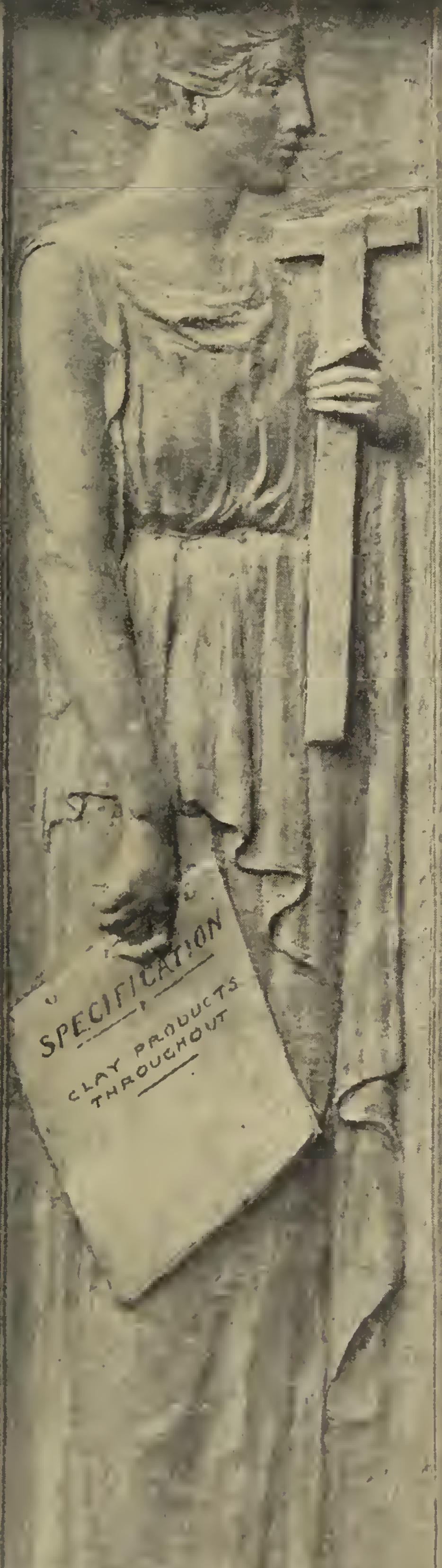
"Many catalogues," he said, "contain matter of permanent value, such as standard tables, decimal equivalents, engineering statistics, and the like, and should be kept in a ready reference cabinet or closet by department managers. At present, however, it is practically impossible to keep them so that they can be of any use. I recently measured the catalogues of 700 houses and found 147 different sizes among them. They varied from pocket editions to immense hooks that would almost cover the top of a desk. How can such a collection of books be filed in any sort of systematic manner?

"The only possible objections to standardization of catalogue sizes," he continued, "is that each manufacturer or wholesaler wants individuality in his catalogue. But individuality can be obtained in color and thickness just as well as in size. With all catalogues printed in two sizes, each manufacturer can adopt a certain color and thickness that will distinguish his catalogue from all others."

The advertising managers of the New York Telephone Company, the General Electric Company, the Western Electric Company, and the Texas Company are among those who have indorsed the catalogue standardization movement.

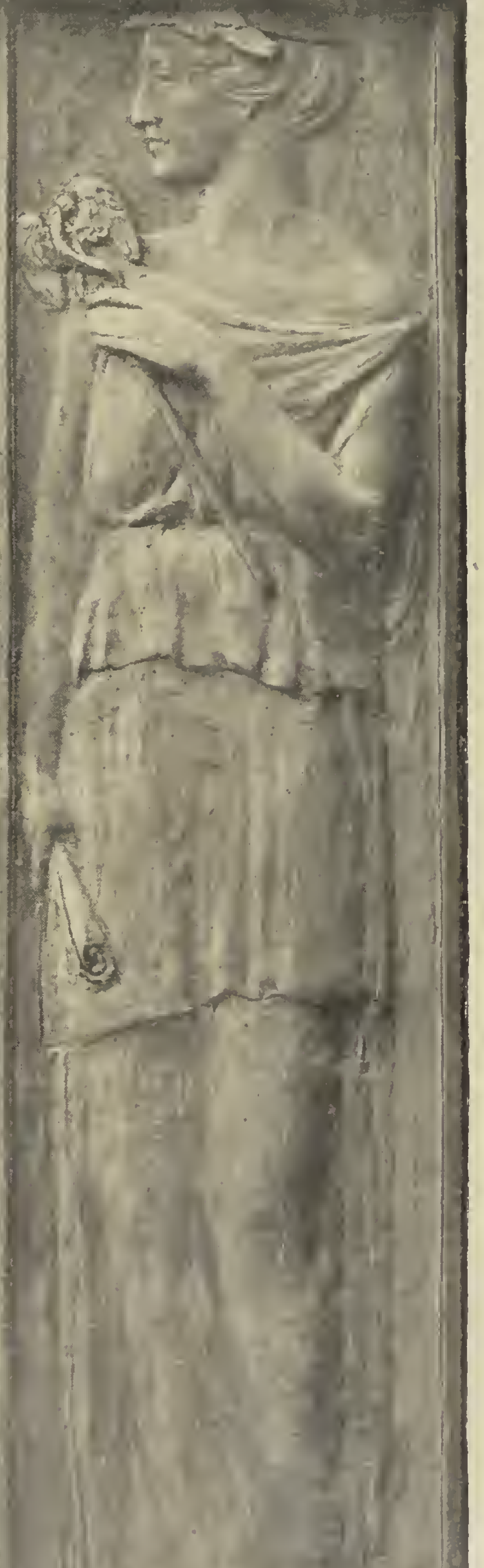
IN THIS NUMBER: Announcement is Made of a Clay Testing Department Managed by "Brick and Clay Record" for the Benefit of the Clayworking Industry

BRICK and CLAY RECORD



FRITZ WAGNER

PRESIDENT NATIONAL TERRA COTTA SOCIETY



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"Brick and Clay Record" Has Double the Paid Circulation of Any Other Clay Journal Published

WELLER-MADE

CLAY STORAGE

Carrying Fine Material to Storage Tanks

If you have an up-to-date, economical storage system for your clay supply, you have, in at least one department, an up-to-date, economical plant.

If, on the other hand, you take your clay as it comes from the bank, pit or mine, depending upon weather conditions, and the hit-and-miss methods of the old-fashioned plant, you are not doing your plant justice.

It is just as important to have an adequate amount of both raw and ground clay, stored against emergencies, as it is to have a reserve fund in the bank—more important, in fact, since you can borrow money, but you cannot borrow clay.

Clay may be handled into and out of storage at a very low cost, which is more than offset by the improved quality of the clay and the consequent improvement in the ware. The fact that your machines are assured a full supply of raw material at all times is an additional profit that cannot be computed in dollars and cents.

If we design and install your storage and handling system, you will increase your capacity and reduce your manufacturing cost.

Let Us Work With You and For You

A Postal or a Short Letter Will Bring a Dividend

Weller Manufacturing Company

CHICAGO

New York Office: 50 Church Street

St. Louis Office: 520 Victoria Bldg.

BRICK and CLAY RECORD

Brick
Established 1894

Clay Record
Established 1891

A SEMI-MONTHLY RECORD OF THE WORLD'S PROGRESS IN CLAYWORKING
PUBLISHED ON THE FIRST AND THIRD TUESDAYS IN EACH MONTH
by KENFIELD-LEACH COMPANY, 445 Plymouth Court, Chicago
Cable Address: Kenleaco, Chicago
Telephone: Harrison 951

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Entered as Second Class Matter, January 2, 1911, at the Postoffice at Chicago, Ill., under the Act of March 3, 1879

TERMS OF SUBSCRIPTION

One Year (24 Numbers) North America (except Canada)	$2.00
Canada and All Foreign Countries (24 Numbers)	3.00

The above rates include the payment of postage by us. All subscriptions commence with the issue last published when the order is received unless otherwise requested.

Single Copies..........20c.

The Editor's Corner

A Department Wherein is Set Apart Comment and Opinions on Some of the Graver Problems Confronting the Clayworker and Co-Laborers

CHIEF among the "crying needs" of the clayworking industry, as expressed in conventions and meetings, has been the protection of the trade from the promotion of plants at points where neither the material nor the location promised success. It has been pointed out that the ruinously low prices made for clay products were due to the inexperience or misfortune of men whose plants were, at their inception, economic mistakes. There seemed no way of preventing their multiplication—no way of stopping the over-production and under-price caused by their coming into being. A condition existed, and exists today, that called for action.

"Brick and Clay Record" has no desire to wash its soiled linen in public. It realizes that its readers have many things to do that interest them much more vitally than any difference of opinion that may exist between it and certain manufacturers of clayworking machinery. However, this difference of opinion has brought out a letter so remarkable in its forcefulness, so pregnant with suggestion and of such solemn import to the industry, that its publication is a duty. Its every line breathes a spirit of progress, a hopefulness for the future, a belief in the survival of better things, a promise to the man who takes up the cudgels for an industry that he pretends to serve.

The letter is from J. B. Hammond, of Bolivar, Pa., the first vice-president of the Eastern Paving Brick Manufacturers' Association, and is given in its entirety. It reads:

I have just noticed your editorial of May 5th, referring to the pressure brought to bear upon you by influential members of the National Clay Machinery Association, to induce you to return to the old system of publication, which was monthly.

As one interested in the advancement of the clayworking industry, I am glad to see that you have thought it worth while to make editorial mention of this influence and to state the source from whence it came. As a consequence, the issue is very clearly defined.

Your final decision will determine whether "Brick and Clay Record" is really what it claims to be—published in the interests of the clayworking industry, or whether it is and has been sailing under false colors, acting simply as an advertising medium for the clay machinery business.

Or, to make it more plain—whether it serves its readers or aims to exploit them.

The day is past when any subsidized publication wields any great influence with the people who read it. The day of the medicine ad. is gone. The habit of the present is to read between the lines. No matter how cleverly influence may be covered, it will crop out, somewhere or other—and frequently.

You have built up a paper with a large and generous circulation. By generous, I mean a circulation that takes the trouble to write you, criticising your work. This is the highest form of generosity that a reader can give you. It costs him much more than his subscription fee.

If you would keep this prestige, this confidence and friendliness, you must keep your editorial skirts clean of advertisers' influence. When the reader finds you are working against, rather than with him, you lose your power to influence him, and your value as an advertising medium wanes.

The magazines that close their columns to advertisers of doubtful reputation and their reading columns to "puffs," sell more space, and at better prices, than do those which take anyone and everyone who has cash to pay. The higher advertising rate is warranted by the fact that the paper is an influence behind the advertiser, rather than the advertiser an influence behind the paper.

The proper thing for "Brick and Clay Record" to do, in answer to the suggestions that have been made it by machinery manufacturers, is to make a counter suggestion, which is: that instead of trying to control your editorial policy, they inaugurate a new policy themselves—**the policy of making machinery for service and not merely to sell.**

Suggest to them that the old policy of exploiting new plants at points where neither material nor market promised success, has put the industry back to the point where "there is no health in us." Too often have they encouraged people that have had shale deposits to build plants under misleading arguments that they could produce a first-class product, where it was impossible to do so, and the country is dotted, from ocean to ocean, with plants that are wrecks, and with people who have met with financial reverses and lost the accumulation of, perhaps, a lifetime in other lines, simply because machinery men have misled them into believing they had something which they did not possess.

It is a matter of history, however, that before leading or misleading these people, the machinery men invariably discovered that the owners of the clay or shale deposits had also enough money to pay for the clayworking machinery—in fact, they made sure of it, and made sure to get it.

If "Brick and Clay Record" would aspire to a higher standard of service, and would show a willingness and courage sufficient to maintain its position in the advancement of the clayworking industries, it would establish a Bureau of Investigation, Consultation, Experiment and Advice for the benefit of all prospective investors in clayworking properties, offering to test their material, and, for a very small fee, if any fee at all, make the necessary investigations as to whether these investors have the material, the location, the markets, the experience, ability and financial resources that indicate success and warrant the establishment of such an industry, and to furnish the information thus gained to reliable machine and equipment manufacturers if the prospect was worthy of encouragement, but doing everything in your power to discourage it, if it lacked any of the requisites that promise undoubted success.

If you would rise to this level, you would render a service to the industry that it could never repay, for you would save many an innocent victim from financial loss and protect the industry from the damaging competition of those who, by attempting to engage in the same line, and meeting with distressing conditions, are compelled to offer their products at prices that demoralize the business throughout the entire territory they are able to reach.

This is a condition that constantly confronts the legitimate clayworker, and is due, in large measure, to the promotion policies of machinery manufacturers. If we could establish a strong protective organization of some kind that would have a due regard for the welfare of those who have invested, or who are about to invest their all in the clayworking business, it would build up a stronger industry, and would benefit every man interested in the industry much more than the efforts of any machinery man who would attempt to economize by suppressing one-half of the issues of your paper, which could carry information and advice to the men in the yard, the mine and in the plant office.

If "Brick and Clay Record" is to be a subsidized publication, then issue it just as seldom as your advertisers may dictate. If you are to issue a publication in the interests of and for the welfare of the industry you claim to serve, then issue that publication twice a month, and let it be fearless, open and free to the discussion of all questions, and let it be not slow in the criticism of methods employed either by those in the clayworking business, or in the equipment business, who are practising patent medicine methods to the demoralization of the most primitive and yet one of the most necessary and most extensive and useful lines of industry that has ever been organized for the advancement and welfare of mankind.

If you would be progressive, you must also be aggressive.

Yours truly,

J. B. Hammond.

In this issue, "Brick and Clay Record" shows that it "aspires to a higher standard of service" by announcing the preliminary steps toward a Bureau of Investigation very much along the line of Mr. Hammond's suggestion. In point of fact, this SERVICE TO CLAYWORKERS, which includes the building of a testing plant sufficiently comprehensive to burn samples of clay under conditions that closely approximate those on a clay plant, has been planned for some time.

The only thing that stood in the way of doing it, was the difficulty found in securing a man who combined sufficient technical knowledge to handle the tests properly, with a practical experience in actual clayworking. The man has now been secured. He comes with a reputation that has made his name well known on two continents, and with an experience that has covered similar work in connection with one of the most widely read and influential clayworking journals in the world—the "Tonindustrie Zeitung."

The details under which these tests will be made will be announced in the next issue. Suffice it to say now, that the prospective investor in clayworking properties can find, in "Brick and Clay Record's" Bureau of Investigation, a fair, unprejudiced test of his clay and absolute secrecy as to his identity, until such time as the tests and other investigations prove that he has a good chance of making a success out of the enterprise he is starting.

Announcement is also made of a SERVICE TO CLAYWORKERS that will benefit the great mass of clayworkers, giving them something gratis which up to this time has been made the subject of a considerable charge.

This is the checking of old freight bills, in order that overcharges may be recovered.

In the May 19 issue, Irwin W. Preetorius, recently appointed Freight Traffic Counselor to "Brick and Clay Record," stated that there was a gold mine in old freight bills, and that thousands of dollars were annually lost to shippers through neglect and ignorance.

We now offer you an opportunity of recovering the amounts that have been charged to you in excess of the lowest legal rate.

We give you a basis for figuring on a more equitable rate in the future, and by so doing, help you to make prices that may put you in competition at places that now seem closed to you on account of the high freight rate.

We ask that you read the offer made in the "Freight Tariffs and Troubles" Department, and then go into the office safe and take out every bill that the railroad has rendered you for freight, demurrage, switching or—for that matter—anything. Go back as far as three years, and send them in to us.

If, after checking these bills, we find that you have not been overcharged, you will feel better about it. If, on the other hand, we find that you have paid out more than you should have paid, and put you in the way to get the money back, you ought to be pleased—very pleased indeed.

SOME weeks ago, "Brick and Clay Record" started a personal representative on a trip to the clayworking plants of one of the Middle West states. He may have called at your yard, or he may be on his way there. One of these days, you will open the door to one of "Brick and Clay Record's" associate editors.

Some of the things that he can do for you are written into another page of this issue. One thing is emphasized—the disposal of your old, second-hand machinery.

Remember, the money that is tied up in that disused machine is costing you six per cent a year. The machine itself is not growing younger—tomorrow a "new model" may make it nearer to the junk pile than it now is.

If you do not know, for a certainty, that you will use it in the very near future, sell it—turn it into money. Then when you want a machine like it, you will not be compelled to use something that does not exactly fit, just because you have it on hand.

Do not misunderstand us—Mr. Arbogust is not buying second hand machinery, nor selling any. But he hears of people who want to buy it, and he is in a position to tell you who they are. Better show him what you have.

THE faculty of putting one's best foot forward and of calling attention to one's own virtues and achievements is the Editor's prerogative.

The advertiser who has something to sell makes a point of arresting the reader's attention with heavy type, attractive illustrations and well turned phrasing. He finds that it pays, or he would, as in the old days, content himself with the publishing of his calling card, which is a miniature sign-board.

The editor has something to sell and the "Editor's Corner" is his advertising page. It is not enough that he mention his wares. Custom and precedent demand a description. "Brick and Clay Record" has something to sell beside subscriptions. The $2.00 a year that it asks for twenty-four issues, and receives, without reduction, constitutes one part of a transaction in which you pay $2.00 because you believe the magazine is worth that, or more, to you, and in which we try to make it worth many times the amount you pay for it.

The particular kind of goods that we are selling in this issue, however, is SERVICE TO CLAYWORKERS, and the transaction will be complete only when you have accepted our offer and have taken advantage of the SERVICES that we are ready to give you, gratis.

It will do you—and us—very little good to simply know that we are willing to test your clay or check your freight bills or sell your second-hand machinery or the many other things that "Brick and Clay Record" stands ready to do. The real benefit will come when you ask us to do it for you, and find that we are doing it.

A man may have a shop full of bargains and a business principle that is a sure builder of a great enterprise, but he cannot make it go unless its people buy. He may have unlimited capital, yet he must surely fail.

We do not ask you to "buy" in the sense of spending any money. We ask that you show your confidence in us, and let us give you Real Service, by testing that service to its utmost limit.

TWICE, within as many weeks, the attention of this journal has been called to the folly of building dryer walls of concrete. In both cases these dryers were built on plants that were not new, and where there was some sort of a supply of cull brick—but not sufficient to complete the work. In both instances a "brickworks engineer" recommended concrete. In both instances the dryers had to be rebuilt in a very short time. The recent revival of the Building Brick Association's slogan, BUILD WITH BRICK, may well be taken to heart by the brickmaker himself, and while he is paying to educate the public into using brick when it builds, he would do well to print, paint, stamp, stain, cut, carve or engrave BUILD WITH BRICK upon everything movable and immovable in his own yard, lest he forget—to his own considerable loss. BUILD WITH BRICK is a good slogan. It is easy to remember and sums up all the building wisdom that is. It points the way to right living and lights the road to safety—safety from delay and trouble.

Your Friend and Counselor—the Trade Paper

By Elbert Hubbard

SOME years ago when I was in the soap business I bought a book of formulas.

This book cost me an even hundred dollars.

It gave secret processes.

It was bound in red Morocco and had a chain around it with a brass padlock, like unto the old-time invention used in the Middle Ages known as a chastity belt.

I think I was more impressed by the chain and padlock than by anything in the book.

In any event I wanted secrets.

Later I subscribed for a trade paper, and found that in the course of the year every recipe in the wonderful hundred dollar book was in my trade paper.

The business of the trade paper is to give away the secrets of the business. Nothing is hidden, or can be.

The editor of the trade paper finds out the best, most efficient, most economical way of doing things and explains these things to his subscribers.

He does what is most useful to him for the subscriber.

A few miles from East Aurora there is a brick yard, devoted to making face brick.

To my certain knowledge, the man who runs this brick yard paid three thousand dollars for a formula for making and burning these bricks.

He could have got the whole thing from his trade paper, gratis.

The man in business to-day who does not subscribe for and read his trade paper is as the yesterdays that were—tramping his way down to dusty death.

To succeed now, we need all of the help we can get; and there is nobody, and nothing, in the round world that is as good and loyal a friend as the trade paper.

"Defend me from my friends," says the old aphorism.

"Use your friends by being of use to them," replies the trade paper.

And by this usefulness, this friendliness, it has made itself practically indispensable to the life of its subscribers.

Notwithstanding our boasted independence of will and initiative, we are all interdependent.

The sooner we let that idea soak into our woozy convolutions, the better.

Unification—oneness, fraternity, co-operation, mutual helpfulness; this is the flag we must raise and carry onward and upward.

The trade paper has these principles emblazoned on its standard, and the vast army of its subscribers—alert, vigorous, red-blooded men and women—are following it to victory.

To join the ranks of the trade paper subscribers is to link hands with the most positive force of our time, to become a well drilled, well informed citizen, radiating energy and power.

Whether the subscriber be a blacksmith hammering out his ideas on the anvil, a mason building for time, an ironworker materializing beautiful things from sheets of metal, a merchant marshalling his campaigns, a clerk at his desk or a salesman behind the counter, he will find that the suggestions and demonstrations given in his trade paper will increase his usefulness, his confidence and his power.

The trade paper is unquestionably the most reliable medium for the education of the craftsman or businessman.

It helps the subscriber to get rid of factory melancholia and the sad idea that everything is going to the bow-wows.

To its pages he turns for counsel and is rewarded by sound, practical, intimate information.

Everything is carefully selected and presented in tabloid form. The trade paper is concentrated energy, ingenuity and brains.

It exemplifies unity, friendliness, counsel—the elimination of imperfections and perfection of ideas.

It is the criterion of progress, a court of appeal, and a friend and counselor in days of trial and trouble as well as in times of peace and commercial prosperity.

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A Factor in the City Beautiful

Giving Some Direct and More Side Lights on An Artist-Artisan, who Sings and Works

Fritz Wagner*

Vice President Northwestern Terra Cotta Company

ALL biographical sketches should, it is said, begin by stating the year in which the object (or is it victim?) of the sketch was born. But when that year seems so remote that it belies the youthfulness of the subject, its omission is excusable. And then again, it has little to do with Fritz Wagner, who began the life that has interest here, as an architectural draughtsman, in which capacity he was found in 1880, in the employ of what afterward became the Northwestern Terra Cotta Company.

Today he is vice-president of that company, a position to which he was elected in 1887. Since then the company has grown from a comparatively small concern, employing perhaps a hundred men, until today more than fifteen hundred artist-artisans are on its payroll, and it is considered the largest terra-cotta concern in the world.

Fritz Wagner combines the attributes of the successful business man with those of the artist. Quality and Service are the two words that govern the plant he controls. A wealth of artistic design is wedded to a world of expert knowledge in ceramics. Excellence precedes price. Promptness overshadows economy. The visitor is welcome—no secret process is hidden behind closed doors. The only alchemy is well directed, artistic effort. Imitators are encouraged—it makes for the betterment of the craft.

Fritz Wagner has as many side-lights as a kohinoor. He has the musical nature of his ancestry, which was Bavarian. He is a public orator of note, a scholar of attainment. He graduated at Nuremburg University, and can talk entertainingly and instructively on the men who people the earth, ancient and modern, on the stars in the Heavens and on the fish that swim in the waters under the earth, making, as can be seen, a wide range of subjects and considerable versatility.

He can sing, and does sing, although he limits his songs to his home and, as a rule, to the songs of his Fatherland. He is not "strong" for Von Tilzer or Cohan.

His musical ability finds an outlet, also, in playing the cornet. This also is done mostly at home, although it has been said that his powers in this line are vastly superior to those of men who bow to whirlwinds of applause at places where music lovers gather to see and be seen, hear and not be heard.

He is a born after-dinner speaker—one of the few that understand the gentle art of not saying too much. For this, many men have arisen and called him blessed.

As president of the National Terra Cotta Society, he stands at the head of a branch of the clayworking industry that is making greater strides than any other line of building material manufacture.

And much of its progress is due to such men as Fritz Wagner, who have devoted the best years of their lives to the development of its artistic qualities, without sacrificing any of its inherent excellence for the sake of immediate gain, or a desire to meet a demand for "low price at any cost."

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*Portrait on Cover

A Boon to Clayworkers

How a Testing Station Will be Built Where Clays, Rock Products, Other Minerals and Compounds May be Given Tests Under Practical Plant Conditions

EVERY authority on clayworking declares that chemical analyses of clay, while desirable, are of little use to the practical man who wants to know what he can make with his clay. In the past, the "easiest way" has been to send the clay to some machinery manufacturer, upon whose judgment the clay worker had to depend. Since the manufacturers of clayworking machinery would not thrive if too pessimistic, it is but fair to assume that they have viewed these tests with rose colored glasses.

"Brick and Clay Record" believes in a testing station that would test for results, and with the idea of discouraging the start of any enterprise that was not a sure winner, so far as material is concerned. Here a testing station such as we will build is described and recommended by one who has made a life study of combustion and ceramics.

By Ernst Schmatolla, Dipl. Ing.

THERE is no doubt but that the best and safest way to test a certain clay, rock or other mineral substance or compound, is to burn it under the same conditions and with approximately the same fuel as will be used to produce the brick or other clay ware which it is proposed to make from the material under consideration.

ERNST SCHMATOLLA, Dipl. Ing.
Graduate Berlin Royal Polytechnic.

The advantages of such tests are apparent. The owner of a clay deposit or quarry is enabled to show his prospective customers or investors commercial samples. He knows what his material will produce and has an opportunity of testing its selling value before going to the expense of building a plant. On the other hand, if his material be worthless, or so nearly so as to predicate a losing venture, he knows that before he has been submitted to a large and useless outlay.

A testing station of this character, conducted by a concern that was free to encourage or discourage the starting of a plant, according to whether the physical and financial properties were good, and the material of the proper kind, would also be of immense benefit to those who owned or who had options on clayland or other mineral deposits; for, with a report favorable to the material, accompanied by samples made from it, the owner of the property would have the best of chances of interesting capital in his project. Here would be something tangible for the investor to see and handle.

Being convinced that such a testing and experimental station would be of great benefit to the industry in Germany, I installed a plant in 1907, at Stralau, near Berlin. This plant was shown and demonstrated to the editors of Professor Seger's "Tonindustrie Zeitung" and is described in that journal, Vol. 1908, page 202. Bound volumes of "Tonindustrie Zeitung" will be found in many technical libraries throughout this country.

The author spent some years of experiment and experience with these testing furnaces and kilns and has, he believes, reduced their size to an effective minimum—that is, to use the minimum amount of fuel—since the samples of fuel, as well as of the material that is to be burned, will in many cases, be shipped from long distances.

Small kilns have also the advantage that they can be changed quickly from one form of test to another, as, for instance, from an open kiln, to a muffle or retort kiln.

The accompanying diagrams, recently drawn by the author, show four kinds or combinations of furnaces and kilns, that will answer for almost any sample burning purpose, and at any practical temperature. The same elements or units will even allow other combination, according to the conditions required.

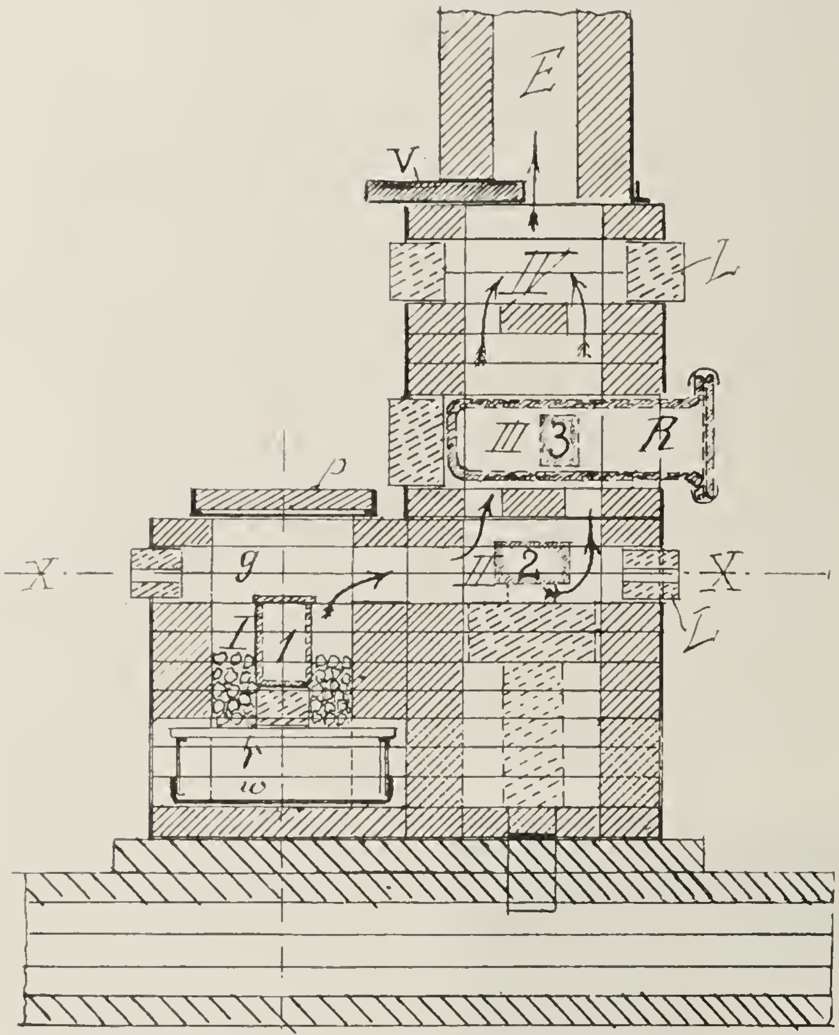
Figures 1 and 2 show, in elevation and plan, a very simple kiln in which four different samples can be burned at the same time, at four different temperatures. To build a kiln of this description, with a small chimney or stack, requires about 500 nine-inch fire brick and a light jacket of one-eighth inch sheet sheet, which can be bent at the corners, to avoid angle iron connections and rivets. The weight of this jacket would be, approximately, 400 lbs. For covering and closing the openings and peep-holes, fireclay tiles may be used.

To allow changes of the lower part of the little furnace (g) the grate (r) is made movable, together with a pan

(w) which carries the grate on four legs. The pan (w) may contain water. The roof of the furnace (g) is formed by a movable fireclay tile (p) which, when moved a little to the side, gives enough space for feeding fuel into the furnace.

A sample (1) may be burned upon the grate, either directly surrounded by the fuel or in a crucible or muffle, which is placed upon half a fire brick. If coke or coal is used, temperature which surrounds the sample (1) may be 2,200 to 2,500 degrees F., according to the quality of the fuel and the strength of the draft, which is regulated by the dampers. The temperature may be regulated by the damper (v), and determined by putting a set of Seger cones on the sample (1).

Fig. 1.



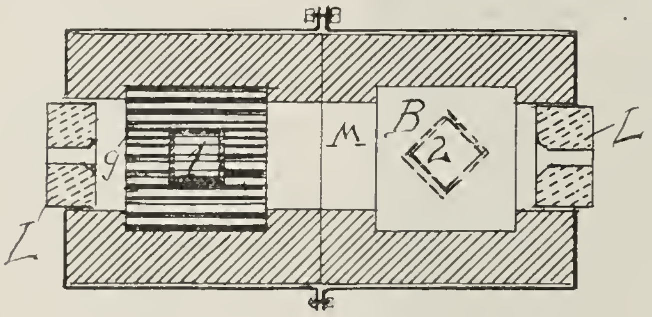


Fig. 2.

Leaving the furnace (g) the heat or flame enters another sample burning space (II) in which another sample (2) is indicated by a light shading. This temperature in this space or apartment may be retained at about 2,000 degrees F.

Above the little chamber (II) is another space (III) which may be accessible from both sides, or in which a muffle (r) or retort may be built in, as shown in the diagram, with a sample (3) inside.

The temperature surrounding the muffle may be kept at 1,600 to 1,800 degrees F., but can also be raised. A similar testing space is arranged at (II) which also allows the direct burning of samples, or the insertion of a muffle; the temperature here will be slightly lower.

The brick or blocks which close the testing spaces may contain peep-holes for observation, and opposite the peep-holes, Seger cones may be placed, to determine the temperature.

This kiln works up draft in all its parts and therefore needs only a short chimney or stack. About 6 ft. of brick work with a piece of stove pipe on top will be sufficient.

Figure 3 shows the same kiln as before but without the top part and top chimney and after the raised bottom has been taken out of the second part of the kiln (b). The latter is connected at the bottom through an opening (c) and a flue (e) with a chimney or stack which should be 20 ft. high or more; a 30 ft. height will allow a better regulation of the draft by means of the top valve (V). A valve on top of the chimney instead of a damper near the bottom gives the advantage that a little fire can keep the chimney warm and in working condition, and the regulation can be done very exactly by the gauge which is hanging on the lever end of the valve (V). A wind shield which surrounds the valve protects it against the influence of the wind.

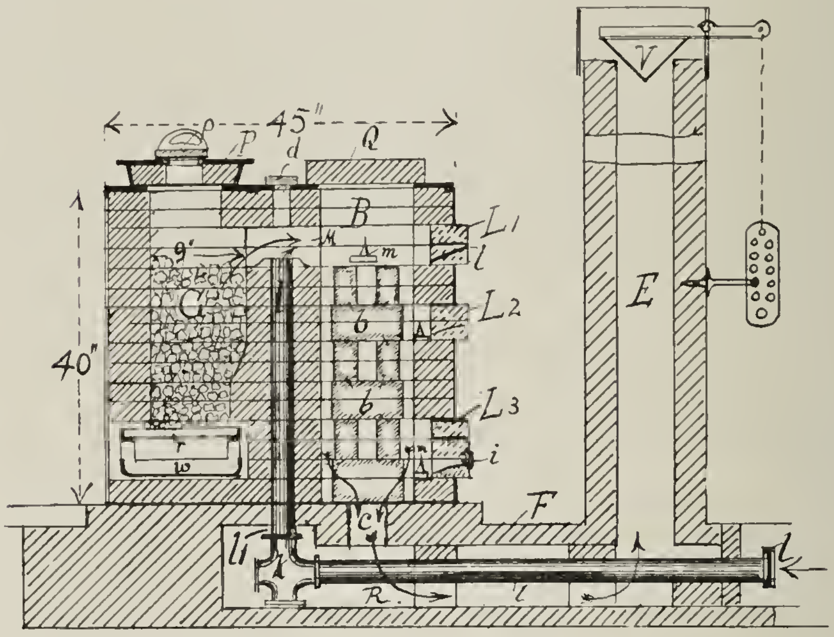


Fig. 3.

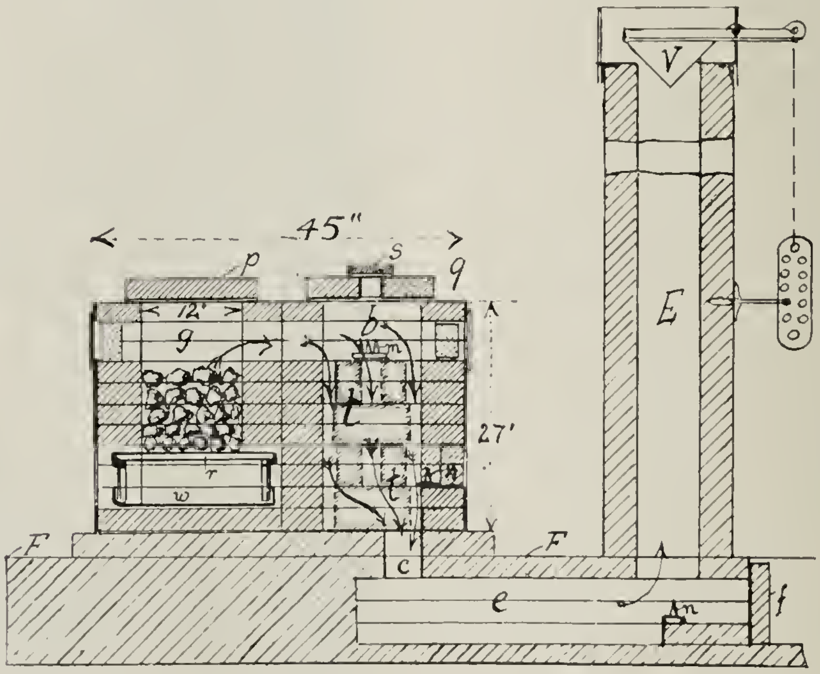


Fig. 4.

In the arrangement shown in Figure 3 the furnace (g) has not been changed, only the sample or crucible (1) has been taken out and somewhat bigger nuts of fuel are used and kept in a thicker layer to get a longer flame which is drawn down through the kiln (b), the latter being shown filled with the sample brick to be burnt in a similar way as in an ordinary down-draft kiln. Seger cones (m) and (n) may be arranged near the upper and lower part of the pile (t). The cover plate of the burning chamber has an opening in the center covered by a little plate (s). A fireclay bar (soap brick) may be inserted through this opening and may carry a certain weight bearing upon the samples to test the carrying strength of the samples at a certain temperature which prevails before the samples begin to soften.

Figure 4 shows the same kiln built a little higher and equipped with a simple recuperator for heating the air for the combustion. This recuperator consists of a system of horizontal pipes (l) which are connected by crosspieces (k) to vertical pipes (l) through which air is conveyed to the flue (M) where it meets the gas coming from the furnace (G). The latter is high enough that carbon monoxide and the other combustible compounds of producer gas are formed, which mixed with heated air at (M) develops in the burning chamber (B) a flame of very high temperature. If the recuperator (R) is long enough (longer than shown on the diagram) the air can be heated to about 1,000 degrees F., and even higher, and by the combustion of the hot gas with such heated air a temperature of 2,500 degrees F. and higher may be obtained in the burning chamber.

Reaching the bottom of this chamber the gases of combustion enter through an opening into the recuperator flue (R) where they give up most of their heat to the pipes (l) and heat the air for combustion. Entering the chimney flue (E) the gases are still hot enough to produce a strong draft which is regulated by means of the valve (V). Also the admittance of the air is regulated at the outer end of the pipe (l) marked by an arrow.

For observing the temperature peep-holes (i) are arranged in blocks (L_1 L_2 L_3) through which the Seger cones (m) may be observed.

The cover plate (P) of the furnace (G) has a smaller opening and cover (*p*) for feeding coal and punching the fuel bed (if necessary); through a small opening (d) the vertical air flues (l) may be cleaned.

For quickly and highly heating the air the recuperator pipes (l) may be of steel, the cross (k) of cast iron, but after a series of tests they have to be renewed as they burn away after some time.

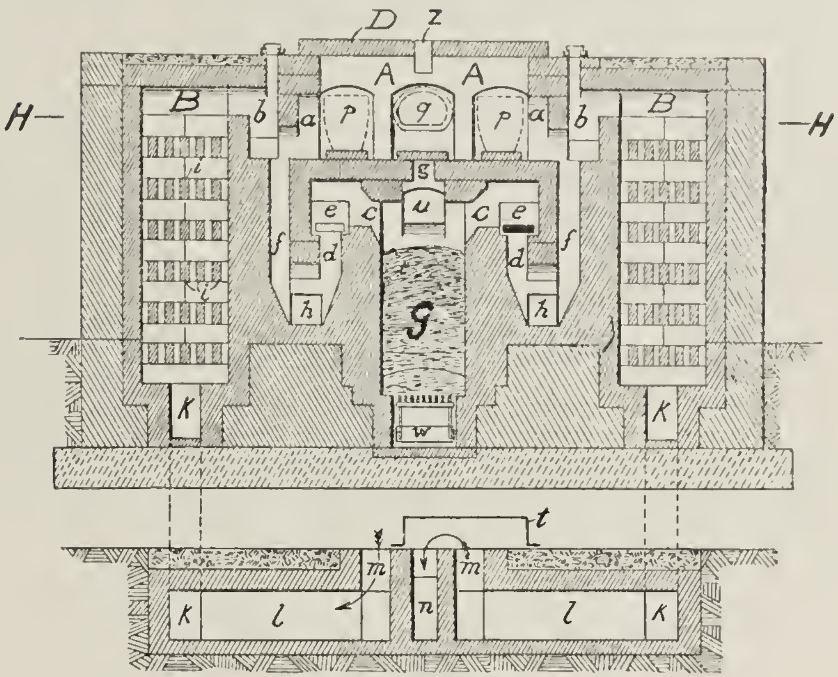
For manufacturing purposes the pipes must be made from fireclay and covered with a second sheet of fireclay plates to prevent leakages, and they do not allow the heat to penetrate the walls so quickly as iron or steel pipes, therefore, the fireclay recuperator recuperates only a smaller part of the waste heat and heats the air only to a moderate temperature.

Therefore, the regenerative kiln shown by Diagrams 5 and 6 in elevation and plan is much more effective and much cheaper for manufacturing purposes and better for high temperature tests which shall imitate exactly working conditions.

A similar kiln was shown on page 1281 of the June 2, 1914, issue of this magazine, in a form particularly designed for burning pure magnesia brick and other high refractories, but Figures 5 and 6 show a form particularly designed for various kinds of tests and experiments which purpose is indicated in Figure 5, where the burning chamber (A) shows two crucibles (p) and one retort (q). This kiln is so arranged that it can be directly fired by opening the flue (g) above the furnace (G) and connecting all three flues (m, m. n) by means of the sliding box (t). The fire gases will then heat both heat storage chambers (B) and flow through both flues (k, l, and m) to the chimney flue (n) and chimney (o), (the latter indicated on the plan in Figure 6 only).

If the box (*t*) takes the position as shown in Figure 5 and if the dampers (g) and the right hand gas damper (e) are closed, the combustible gas will flow from the gas producer furnace (g) through the left hand flues (c, d, f) to the burning chamber (A), where it meets (between a and b) the air for combustion which has been heated to a very high degree (1,600 degrees F. to 2,000 degrees F) in the left hand air heating chamber or regenerator (B). This air has entered the system through the open left hand flue *m* and passed through the firebrick checkerwork of the left hand heat storage chamber (B). It is obvious that by mixing a hot combustible gas with air heated to such a degree the highest temperatures can be reached (3,300 degrees F. and even higher), which practically can be reached by combustion of fuels in commercial furnaces and kilns.

Fig. 5.



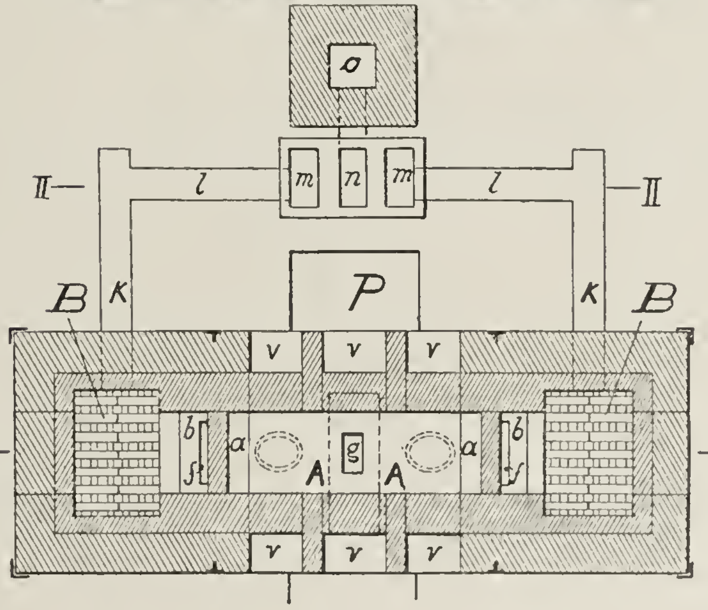


Fig. 6.

The flame which leaves the burning chamber (A) at such temperature yields its heat in the right hand heat storage chamber (B) and the waste gases do not need to carry more heat away through the right hand flues (k, l, m, n) than necessary for producing the draft in the chimney. When sufficient heat has been stored in the checkerwork of the right hand chamber (B), and the waste gas commences to carry more heat away than necessary, the box (t) and the gas inlet gates (e) are reversed and gas, air and flame flow in the reversed direction from the right hand to the left. The box (t) then connects the left hand flue (m) with the chimney flue (n) and leaves the right hand flue

(m) open for admittance of air which takes up the heat stored in the right hand chamber. The reversing is repeated at certain intervals (from one to three hours). For certain tests or experiments the burning chamber (A) may be changed or built higher. Instead of a stack an exhausting engine or blower may be arranged.

While these kilns may be built for any capacity, from one cubic foot to a thousand, for your testing station, I would recommend the sizes shown on the drawings that accompany this paper. This would enable you to make tests of ten or twelve brick or the equivalent, at one time, and still be sufficiently miniature to allow for speedy cooling and consequent quick reuse.

This last point is important, as it will be necessary to change fuels, at times, to determine what fuel is best suited to certain clays, particularly when your client is in a position to use one or more kinds of fuel at his plant, as your experiments may prove advisable.

The ground space required would be approximately 16x20 ft. and the expense of building it, in the city of Chicago, would be in the neighborhood of $500.

The expense of conducting the tests would be governed, of course, by the number of tests that could be made at one time, and for this reason, I would suggest that a fee system be established, similar to the one the author had in Germany, which was graduated by the thoroughness of the test.

A *preliminary* test, that would determine whether or not the clay had any commercial value, could be made with very little expense—$10.00 being ample to cover this point. Further than this, you would have to determine the matter to suit the wishes and requirements of your clients.

Be assured, however, that any amount in reason, which your clients may spend, and which you may expend in experimental tests, will be amply repaid to you, to your clients and to the industry at large.

Chicago Brick Strike Settled.

CHICAGO'S great brickmakers' strike, which tied up practically all building operations in that city for more than two months, has been settled, and the employers are credited with a distinct victory.

The men have conceded the right of the manufacturers to adopt any and all improved machinery and methods in the manufacture of brick, and the men have agreed that no workman on the yards shall quit work in the course of the day, before quitting time, and that any member of the Brickmakers' Union doing so shall be fined from $5.00 to $25.00 according to the gravity of the offense.

It is also agreed that the Union shall not in any way dictate when the yards shall be closed or opened, and the manufacturers are allowed to reserve the right of discharging any employe who shall be deemed incapable or inefficient, without recourse to any labor organization.

In return, the manufacturers agree to employ only Union men, so long as the Union shall be able to supply the full quota of men necessary to the full operation of the yards.

The agreement is binding for a period of five years and assures industrial peace in Chicago for that period at least.

Archbold, Ohio, Comes Out For Brick.

B. F. Neff & Son, of Bryan, Ohio, report that business is excellent and that pessimism is the scarcest material in the plant. They say that the output is sold out for some time ahead and that everyone is correspondingly happy.

On August 31st last, Archbold, Ohio, suffered a severe fire which burned out the entire north half of the town. A brick bank building (the only brick building that was in the fire zone), prevented the fire from spreading to the south half of the town and furnished an interesting situation. A building which had been put up with cement block stood in the heart of the burning district, and the heat was so intense that the cement block was disintegrated into a pile of sand so that any picture which might have been made of the building would look like a sand heap rather than a ruin.

The object lesson was so great that the town council passed an ordinance providing against the use of concrete in any of the homes or offices which would be rebuilt in the burned section and specified brick. Added to this, in order that there might be some standard of quality stated for the brick, the ordinance mentioned that no brick or clay hollow block should be used that was not equal to that manufactured by the Archbold Brick & Tile Company.

It is said that a howl went up from the cement dealers in the town that caused several cement manufacturers' representatives to make a hurried trip to Archbold, but as they were protesting against what they claimed was unfair legislation, "Dick" Bourquin of the Archbold Company offered to test any cement block which they might offer by placing one or more in a kiln of fireproofing which he had set and which was about to be burned. Several members of the council agreed that if this were done and the block remained intact after the burning process, they would rescind the ordinance. Up to this date, however, no cement block has been delivered to the Archbold Brick and Tile Company for testing purposes.

Will Standardize Refactory Tests.

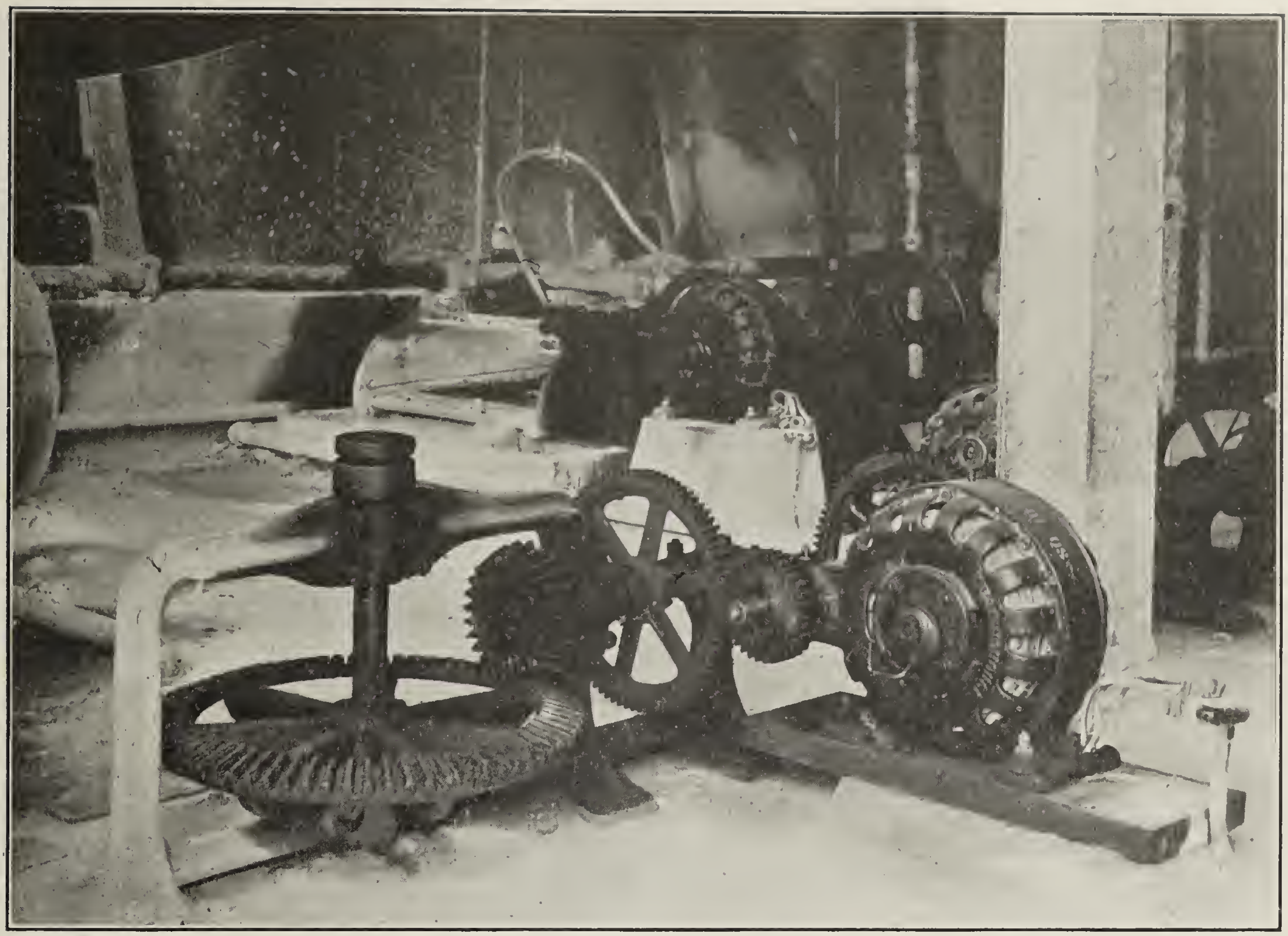
A joint meeting of the American Gas Institute and the American Refractories Association was held May 28th in the offices of the Harbison-Walker Refractories Company of Pittsburgh, Pa. The object of the meeting was to discuss standard methods of testing refractories and the drawing up of suitable specifications for same, with special reference to the needs and requirements of the gas industry.

The committee on preparing standard methods of testing refractories consists of A. V. Bleininger, Chairman, Bureau of Standards, Pittsburgh, Pa., W. H. Fulweiler, Philadelphia, and Kenneth Seaver of the H. & W. Refractories Company, Pittsburgh, Pa.

For preparing specifications for refractories, a committee was appointed consisting of: (a) For Clay Refractories; J. S. De Hart, Chairman, W. H. Batten and Lemon Parker; (b) For Silica Refractories; C. J. Ramsburg, Chairman, J. P. Kennedy and Kenneth Seaver.

A Visitor From New Zealand.

It is evident that the clay working industry in America has something to show visitors from "the other side" as we frequently hear of some representative of a foreign brickmaking concern being commissioned to come to America to learn the "latest wrinkles" in clayworking. W. Shiel of the firm of C. & W. Shiel, of Caversham, New Zealand, is now making a special tour through the United States, visiting the larger plants and taking careful note of the special features and improvements in the manufacture and burning of brick, tile, clay conduits and fireproof blocks.



Back-Geared Motors Driving Agitators and Sifters.

Electricity in the Clay Plant

The Application of Central Station Power Purchased from Public Service Corporations Is Economical and Practical. The Figures Given Are Authentic and Reliable

THE following article, which appeared in the May 23 issue of the "Electrical Review," is written from the standpoint of an electrical expert, as he talks to the readers of an electrical paper. He explains the application of the current to the various processes of brickmaking, and this explanation is, naturally, more for the layman than for the clayworker. It is worthy of careful study by every man interested in the clay products industry, however, for it is a splendid exposition of the ways and means of applying this flexible and economical power to clayworking.

WHILE the application of electric power to industrial service is comparatively recent, it has already won recognition and is making rapid progress. Manufacturers of steel were the first to recognize and make use of the considerable advantages obtained by driving machinery electrically, and this industry now consumes more electrical power than any other. Since the first moves toward the industrial application of electricity were made in steel mills, other industries have followed the example and now practically every recognized industry, textile, mining, metal-working, clay-working, etc., use electrical power for the manufacture and transportation of a very large proportion of its product.

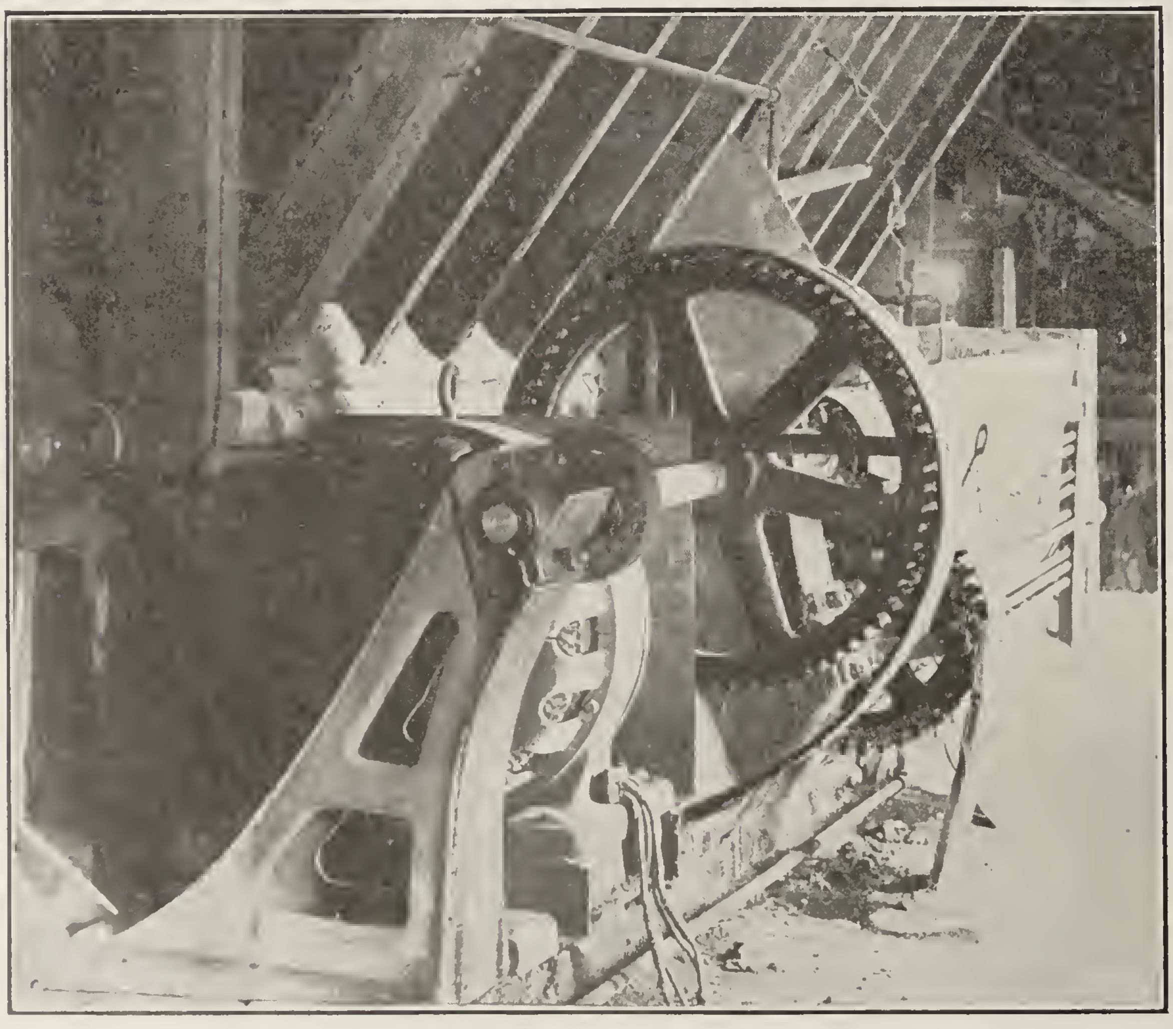
The manufacture of brick and tile is probably the oldest of all industries, dating back to early Biblical periods. It would seem, however, that the antiquity of the industry had not brought about a complete knowledge of the possibilities of scientific manufacture and management, for it was not until a few years ago that the clay-working industry departed from methods which had been in use for hundreds of years. The first steps toward electrically operated clay-working plants, and therefore the possibility of economically operated plants, were probably made because of the solicitations of central power plants desiring to sell power. It has been upon the service and publicity of central power plants that the extension of electric drive in clay-working plants has been dependent. This has been because of the fact that the power requirements of such plants are usually of such amounts that a power plant, generating a small amount of power for one consumer cannot make it as cheaply as a central power company, generating a large amount of power for a number of consumers, can sell it.

Within the past few years, the territory served by central power companies has increased to a large extent, and in most localities the clay-worker, with a plant making 25,000 to 100,000 brick per day, can buy electrical power at a rate which will allow the manufacture of product more cheaply than can be secured by any other means of power production.

The selection of the means of securing power for a large brick plant, making several hundred thousand brick per day, or a smaller one, which is located so that it cannot obtain a favorable power rate from a central station, is problematical and one which needs complete investigation as to railroad facilities, water, coal, and cost of attendance, before making a decision as to power installation.

Motor Driving Two Pug Mills In Clay Plant.

In the consideration of the equipment of an existing plant, which has already some other method of drive than electrical drive, there are a number of factors that require careful consideration in comparing power costs. In plants operating with permanent kilns, the waste heat from which can be utilized for drying, electric power offers advantages over the central engine drive in many cases. One saving in particular, is in regard to the operation of the blowers and exhaust fans which have to be in service continuously 24 hours a day when there is a charge in the kilns. As the main portion of the plant is operated only during the day time, or approximately 10 hours, it is quite an expense to provide steam power for the engines to drive the blowers and fans the remainder of the 24-hour period. With electric drive, however, this work can be accomplished at a minimum expenditure of energy and cost, as all departments of the plant, with the exception of the kiln department, can be shut down during the greater portion of the time.



40-Horsepower Motor Driving Pug Mill.

With the installation of a central power plant and temporary kilns, the plant is subject to the same disadvantages as noted above, that is, a portion of the boilers have to be in operation when the remainder of the plant is shut down for drying purposes. This disadvantage, however, is about on an equal basis no matter what method of drive is selected, and when the advantages for electric drive, as noted below, are taken into consideration, any other method of drive than electric drive is seen to be working at a disadvantage.

The clay-working industry is similar to many others in that the future depends largely upon the economies and refinement of manufacture.

The many advantages and the great resourcefulness of electricity have been important factors in making progress along these lines and afford:

(1) More economical arrangement of plant. By the application of individual motors, the various departments of the plant can be located and arranged to the best advantage for operating without the limitation of arrangement as imposed by any other method of drive which requires belt connection.

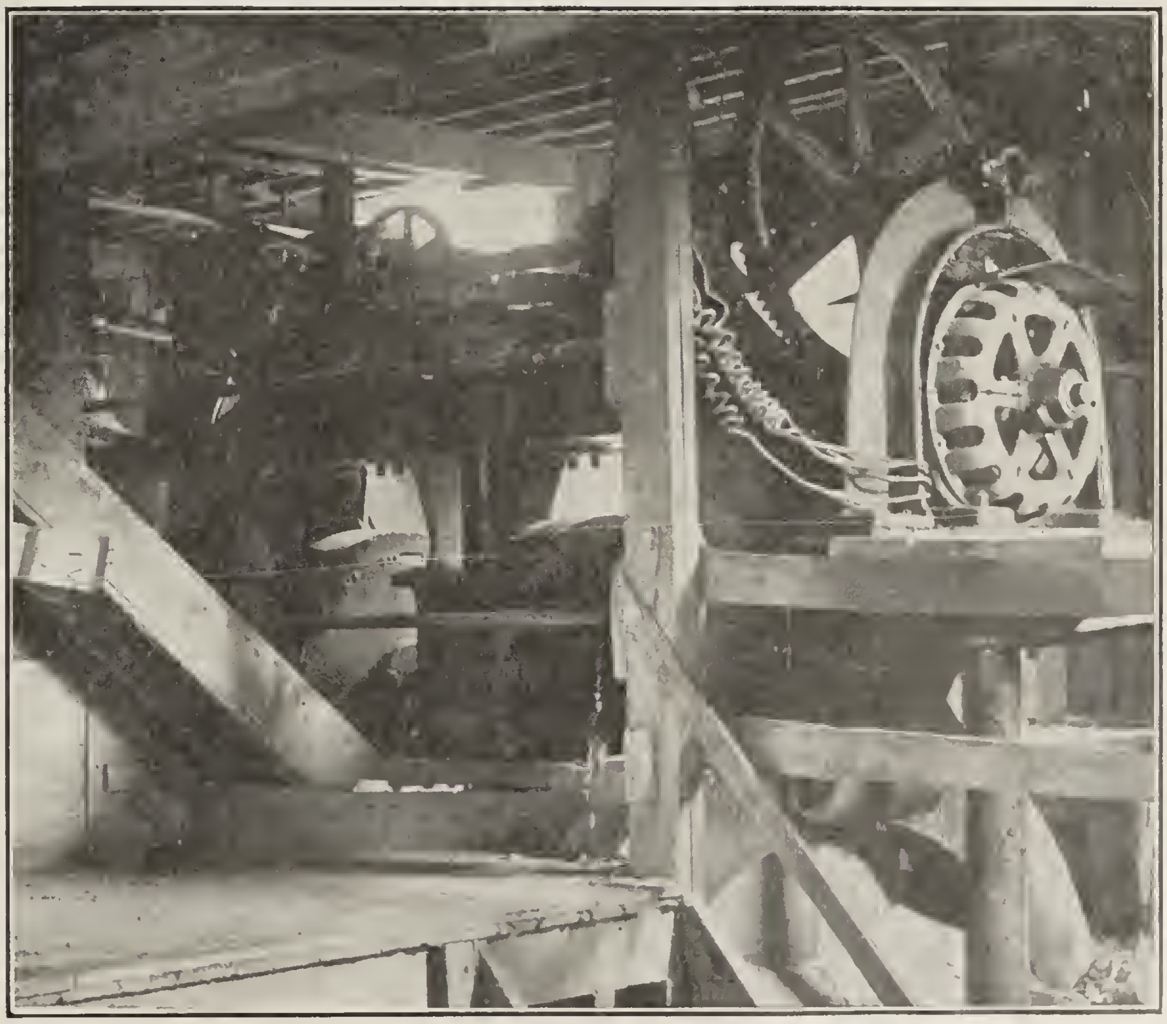
(2) Increased output. When the various machines or departments are operated by individual motors there is a greater assurance of continued opera-

Motor Driving Pumps in Clay Plant.

tion as compared with a central engine drive, in which case, engine trouble means a shut down of the entire plant. Motors also maintan practically a constant speed throughout their operating range, which results in an increased production as compared with a plant driven by a single engine where the speed varies not only with the boiler pressure, but also with the variation in load. Also the most practical method of drive for auxiliary apparatus such as brick-setting machines, haulage locomotives and other traveling machinery is by means of electric motors.

Electric motors are of simple construction and even for the most severe classes of service are very durable. Due to the fact that they can be applied at the closest position relative to the driven machine, the connecting apparatus such as belts, gears, etc., are reduced to a minimum. Fuses or circuit-breakers are installed in the motor circuits as a protection against severe overloads, such as caused by clogging of the various machines which might cause damage to the motor and the driven apparatus. The possibility of shut downs, due to machine breakage, is thereby greatly reduced.

Clay possesses the characteristic property of plasticity by virtue of which, when subjected to a deforming pressure and the pressure removed, it preserves the shape of the mold. The degree of plasticity can be varied by tempering or adding in suitable quantities water and sand, sawdust, ashes or other inert material. The further manipulation then falls under one of four general methods: hand molding, stiff-plastic, semi-plastic or dry methods, each of which, with the possible exception of the first, permits of the advantageous application of electric power. The stiff-plastic process is generally regarded as the best and most economical where the nature of the raw clay makes its use possible.



40-Horsepower Motor Driving Dry Pan.

In up-to-date plants equipped for electrical operation throughout, a great variety of motor applications is found. The clay or shale is excavated by means of electrically operated shovels and loaded into transfer cars hauled by an electric yard locomotive, to stock piles where, under action of rain and frost, it is weathered and partially disintegrated. From the stock piles the clays, especially the harder shales, are transferred to the motor-driven roll crushes or dry pans, and screens, and then by cup conveyors to the pug mill. From the pug mill the now thoroughly mixed and tempered mass is delivered to the auger brick machines where it is forced through dies carefully designed to produce a true cross section with maximum uniformity of density, in the form of a continuous rectanglar column. A frame carrying tightly strung piano wires or suitable knives rotating at the proper speed, cuts the issuing column of clay into standard sized blocks or bricks.

The green bricks are carried by a belt conveyor, which moves somewhat faster than the column issuing from the auger and consequently separates the bricks slightly, to the represses where they are forced into molds and subjected to heavy pressure. This operation smooths the surface and squares up the corners. The brick is now ready for the drying house and kiln.

From the central-station standpoint, the opportunity to sell power to brick plants depends almost entirely on the method of drying employed.

In addition to sun drying there are three general methods used, depending to some extent upon the condition of the clay. These three methods are steam drying, waste heat and direct heat.

If the drying of the brick is to be done by steam, generation of energy at the plant often proves more economical than purchased energy, although several factors other than actual coal consumption must be considered. Numerous plants, however, have found it profitable to purchase power, although using steam for drying.

Without doubt the most economical and efficient methods of drying brick is the hot air system which uses waste heat from the kilns. Motor-driven fans draw the hot air and gases from the kilns to the dry rooms. Usually an auxiliary furnace is employed with this system.

When this method of drying is employed, central-station power will, in every instance, effect a considerable saving. The accompanying table shows the results of tests conducted on four drying plants, two using exhaust steam and two using waste heat. The increased efficiency of the latter is at once apparent.

For dry pans, sanders, conveyors, fans, bucket elevators and other machines with similar requirements the standard induction motor with short-circuited bar-wound rotor is usually entirely satisfactory. Each of these applications involves continuous duty at constant speed together with relatively easy starting conditions and no occasion for reversal of direction of rotation. On the other hand, for pug mills, augers, tempering wheels, hoists, excavating shovels, etc., where frequent starting and reversal variable-speed requirements and excessive starting torque are encountered, the induction motor with phase-wound rotor and external secondary resistance, is in general recommended. This form of motor with variable secondary resistance is designed to secure maximum torque with the least possible shock to the supply system when starting under full load.

When for any reason direct-current apparatus must be used, motors with compound windings should always be specified, except for driving fans, for which service shunt-wound motors are suitable. Where the service requirements are similar to those outlined for the induction motor with short-circuited bar-wound rotor, the direct-current motor should have the standard amount of series winding; where the induction motor with phase-wound rotor would be suitable for alternating-current service, the direct-current motor should have approximately 40 per cent of series winding and commutator and bearings should be properly protected from grit and flying mud.

If motors are geared or belted direct to any of the large machines without the use of friction clutches they should be designed for a high starting torque since when starting any of these machines full of clay a very large torque is required. Either induction or direct-current motors may be designed to meet these requirements. If friction clutches are used the motors may be started light and the load thrown on later, but this introduces another piece of apparatus subject to wear and trouble and should be avoided where possible.

The direct-connected motor drive makes the most compact and efficient layout, but care must be taken to see that none of the laws of mechanics are violated; that is, that the foundations are solid, that gears are not run at too high speed, that they are well supported in bearings and rigid, and that the motor is not subjected to severe vibrations. The motors are not injured by the clay and dust, and if the mechanical application is well made a satisfactory drive is assured.

As to the horsepower required to drive the various machines used in the brick-making industry, the motor sizes given are the average taken from several similar installations all of 100,000 bricks capacity per day.

Required Horsepower.

Machine.	Horsepower.
Electric locomotive	30
Hoist	20
Dry pan	30
Elevator	10
Pug mill	50
No. 65 auger	90
Repress	30
Transfer car	10
Brick-setting crane	25
No. 1 Horizontal clay steamer, 20 by 10-inch	10
Eagle D. M. brick press	5
No. 42 D. M. brick press	5
R. 2 brick repress	5
No. 33 roofing tile press	8 to 15
No. 39 roofing tile press	5
No. 46 roofing tile press	4

American Clay Machinery Company.

Machine. Model.	Horsepower.
B-4 mold press-brick machine	10 to 12
C-4 mold press-brick machine	10 to 12
D-3 mold press-brick machine	10 to 12
D-4 mold press-brick machine	10 to 12
2 and 3 mold press-brick machine	8 to 10

American Clay Machinery Company, Auger Brick Machines.

No. 1 giant	40 to 60
No. 2 giant	25 to 30
No. 6	15 to 20
No. 8	25 to 35
No. 10	30 to 50
No. 15	75 to 100
No. 41	30 to 50
No. 43	35 to 40
Acme	20 to 25
Centennial	20 to 30
Mascot	10 to 12
Special Giant	75 to 100

Accurate figures covering cost of electrical operation are difficult to obtain owing to the widely varying factors influencing production. Records from several plants with a daily capacity of from 50,000 to 100,000 soft-mud sand-molded bricks, indicate a fair average of 15 to 20 molds of six bricks each per minute or from 90 to 100 bricks per kilowatt-hour for all electrical power consumed. Plants using the stiff-plastic method show approximately the same output per kilowatt-hour energy expended in brick machines proper. One plant of 156,000 daily capacity shows a power consumption of 1,700 kilowatt-hours per day for its auger brick machines. Another plant, with a daily capacity of 200,000 common bricks, shows for two successive months an average monthly output of 4,700,500 bricks at an average expenditure of 45,600 kilowatt-hours in driving its auger machines. Where the change from steam engine or other form of mechanical power has been made, an estimated saving in operation expense of from 20 to 30 per cent has often been effected.

While the total power required, including auxiliary devices, varies from 12 to 18 kilowatt-hours, a conservative estimate of power required by pug mills and augers is about 1.5 horsepower per 1,000 bricks per 10-hour day, or 11 kilowatt-hours per 1,000 bricks.

Data on several typical brick-making plants purchasing energy from central-station companies are given in the following pages.

	Steam Dryer. Natural Draft.	Steam Dryer, Forced Draft.	Hot Air, Natural Draft.	Hot Air, Draft. Forced
Capacity of dryer (bricks)	390,096	39[illegible],280	175,560	544,320
Brick dried in 36 hours	373,000	395,000	219,000	362,880
Outside temperature—Fahrenheit	33°	20.5°	35°	34°
Temperature of emergent air—Fahrenheit.	121°	154°	104°	128°
Average mean temperature of dryer	106	119.5	88.80	117
Average relative humidity, per cent	29	26	70	67.1
Average grains of moisture per cubic foot	15.5	16.9	14.2	20.6
Volume in cubic feet	78,678	112,028	126,595	537,156
Average moisture taken from brick, ounce	11	12.5	13	......

Brick-Making Data—Sheet No. 1.

The term load-factor is used in these data in such a sense that a load-factor of 100 per cent represents the use for 24 hours every day of power corresponding to the rated capacity of the motors connected. An operating-time load-factor of 100 per cent represents the use of the rated capacity of the motors for the running hours per day specified for each installation.

Keystone Clay Products Company, Greensburg, Pa. This is a six-kiln brick plant with a capacity of 60,000 bricks per day. The average daily output is 28,000 brick. Running hours per week, 60. (The pan and pug mills are operated approximately 48 hours per week.) Group drive.

Total connected horsepower, 215. Number of motors installed, 6. Average kilowatt-hours per month, 12,664.

Kilowatt-hours consumption for 12 months: January, 1,897; February, 1,593; March, 1,745; April, 2,156; May, 13,970; June, 1,782; July, 17,653; August, 19,689; September 24,731; October, 27,917; November, 13,970; December, 24,870.

Load-factor, 11.8 per cent; operating-time load-factor, 22.6 per cent.

The average total electric energy consumption per 1,000 brick is 26.4 kilowatt-hours.

MOTOR INSTALLATION.

The following is a list of the motors installed withphase, 60-cycles, 220-volts. The motors are of the squ their respective drives. The supply source is two-irrel-cage induction type.

No.	Horse-power.	Speed R. P. M.	Application.
1	40	840	Geared to a nine-foot dry pan and belted from extension shaft of dry pan to a 40-foot bucket conveyor.
1	40	840	Geared to a nine-foot dry pan and belted from extension shaft of dry pan to a 40-foot bucket conveyor and a 50-foot by 24-inch belt conveyor.
1	40	840	Geared to a No. 51 pug mill.
1	15	1,120	Belted through countershaft to a 140-inch blower. Speed 216 revolutions per minute. (Supplying draft for ovens.)
1	5	1,700	Belted to a 72-inch disk fan.
1	75	685	Geared to a No. 1 Giant brick auger (capacity 6,000 per hour). From the countershaft of brick auger is belted a 30-foot shaft (four hangers) which drives an 18-brick automatic cutter (three belt conveyors, 6-foot, 25-foot and 50-foot respectively), and a 10-foot bucket conveyor and repress.

All brick-making machines were supplied by the American Clay Machinery Company. Energy is supplied by the West Penn Electric Company.

Brick manufacturing plant having an average yearly output of 9,000,000 bricks. Plant operates 54 hours per week except during the months of December, January and February, when no work is done.

Total connected horsepower, 100. Total number of motors installed, 1. Average kilowatt-hours per month, 17,810.

Kilowatt-hour consumption for 9 months: May, 17,010; June, 15,600; July, 19,600; August, 18,600; September, 19,280; October, 18,280; November, 14,320; March, 17,520; April, 21,340.

Load-factor, 32 per cent.

The approximate electrical energy consumption per 1,000 bricks made is 21.3 kilowatt-hours.

MOTOR INSTALLATION.

The following is a list of the motors installed with their respective drives. The supply source is three-phase. 60 cycles, 220 volts.

No.	Horse-power.	Speed R. P. M.	Application.
1	100	580	Belted to a line shaft driving one nine-foot dry pan; one clay elevator; one E. M. Freese Company size L, brick machine, capacity 3,000 bricks per hour; and one cutting table.

Manufacture of brick and tile products. Group drive. Running hours per week, 60.

Total connected horsepower, 60. Number of motors installed, 1. Average kilowatt-hours per month, 8,399. Average kilowatt-hours per month, per connected horsepower, 139.

Kilowatt-hours per month for 12 months: January, 7,870; February, 9,530; March, 13,070; April, 11,850; May, 12,050; June, 10,150; July, 6,010; August, 5,350; September, 4,000; October, 9,500; November, 9,720; December, 1,680.

Load-factor, 25.7 per cent; operating-time load-factor, 53.8 per cent.

The average electrical energy consumed per 1,000 bricks made is 11.2 kilowatt-hours.

MOTOR INSTALLATION

The motor installed in this plant is a 60-cycle, three-phase, 2,080-volt machine.

No.	Horse-power.	Speed R. P. M.	Application.
1	60	720	Belted to a line shaft driving one nine-foot, Frost Manufacturing Company's dry pan; one Chisholm, Boyd & White mixer; one six-mold brick machine, capacity, 30,000 bricks per 10 hours; and one 2,000-pound hoist elevator and conveyors.

Brick-Making Data—Sheet No. 2.

Pressed-brick manufacturing plant having an average yearly production of about 8,000,000 bricks. Plant operates 60 hours per week.

Total connected horsepower, 60. Total number of motors installed, 3. Average kilowatt-hours per month, 4,949.

Kilowatt-hour consumption for 12 months: January, 4,000; February, 1,940; March, 2,600; April, 5,000; May, 2,708; June, 5,346; July, 5,592; August, 5,680; September, 6,100; October, 4,350; November, 6,920; December, 2,905.

Load-factor, 15 per cent; operating-time load-factor, 31.8 per cent.

The approximate electrical energy consumption per unit of output is 0.00707 kilowatt-hour.

Motor Installation

The following is a list of the motors installed with their respective drives. The supply source is three-phase, 60 cycles, 220 volts.

No.	Horse-power.	Speed R. P. M.	Application.
1	5	1,200	Belted to an American No. 4 blower.
1	5	1,200	Belted to a line shaft driving one small planer; one small drill press; and one emery wheel.
1	50	850	Belted to line shafting driving one four-mould Boyd brick press, capacity 2,300 bricks per hour; and one eight-foot dry pan with elevator.

This plant has been motor driven for three years without a day's loss due to motor power. Energy is supplied by the Enid Electric & Gas Company.

Brick-making plant having an average output of 6,000 bricks per hour. Plant operates 45 hours per week, 8 to 9 months per year.

Total connected horsepower, 185. Total number of motors installed, 3. Average kilowatt-hours per month, 12,200.

Kilowatt-hour consumption for 7 months: May, 20,360; June, 14,310; July, 99,420; August, 11,910; September, 9,000; October, 4,300; November, 110.

Load-factor, 12 per cent.

Motor Installation

The following is a list of the motors installed with their respective drives. The supply source is three-phase, 60 cycles, 220 volts.

No.	Horse-power.	Speed R. P. M	Application.
1	100	850	Belted to a line shaft driving one E. M. Freese Company Class 1 pug mill; one Freese brick machine; one Freese rotary cutter, size No. 20 one belt conveyor, 10-inch belt, 100 feet long, speed, 300 feet per minute; and one incline belt conveyor, 10-inch belt, 45 feet long, 8-foot lift, speed 300 feet per minute.
1	75	850	Belted to a line shaft driving two Thomas Carlin 9-foot dry pans, 150 revolutions per minute; two bucket elevators, buckets 6 by 9 by 6 inches on 28-inch centers; one bucket elevator, 25-foot lift, buckets 6 by 9 by 6 inches on 15-inch centers.
1	10	1,120	Back-geared motor, driving one 200-foot belt conveyor, 14 inches wide, 475 revolutions per minute.

Dry Pressed Brick Company, Sandpoint, Idaho. Manufactures pressed brick. Group drive. Running hours per week, 60.

Total connected horsepower, 117.5. Number of motors installed, 3. Average kilowatt-hours per month, 13,947. Average kilowatt-hours per month, per connected horsepower, 119.

Kilowatt-hours consumption for five months: April, 15,150; May, 18,280; June, 16,260; July, 15,780; August, 4,328.

Load-factor, 26 per cent; operating-time load-factor, 45.8 per cent.

Motor Installation.

The following is a list of the motors installed with their respective drives. The supply source is three-phase, 60-cycles, 220-volts.

No.	Horse-power.	Speed R. P. M.	Application.
1	75	720	Belted to a line shaft driving one Andrews brick press, No. AA-110, capacity, 1,800 bricks per hour; one Andrews brick press, No. AA-114, capacity, 1,840 bricks per hour; one clay mixer and feeder; one Scott pulverizer; one 6 by 10-inch bucket conveyor, speed 160 feet per minute, one 6 by 10-inch bucket elevator, speed 500 feet per minute; one nine-foot clay mixer; and one 12-inch double-drum hoist, speed 200 feet per minute.
1	35	900	Belted direct to one nine-foot exhaust fan. Speed of fan, 300 revolutions per minute.
1	7.5	1,800	Belted to countershaft driving one coal conveyor. Speed of conveyor, 200 feet per minute; capacity, 10 tons per hour.

Energy for this installation is supplied by the Northern Idaho & Montana Power Company.

Price Cutting vs. Salesmanship

A Clear Statement of One Reason Why Selling Face Brick Has Not Proven as Profitable as Some People Imagine

By Harold W. Holmes

General Manager Puritan Brick Company, Detroit, Mich.

Harold W. Holmes.

As WE take up the consideration of this subject let us do two things—look at it, and look past it. Just as when you meet a person on a bright day and see the man himself and also see his shadow behind him so, as we turn the light on this question, we should see the deed itself and the shadow behind it. In fact, it is the shadow we are most concerned with. We wouldn't care if everyone cut prices or cut capers like college boys if there were no afterwards, no shadows.

Price cutting is one of the most ancient and dishonorable customs the world can boast and the mere fact that it comes up for discussion at all is significant. Wherever price cutting is indulged in there is discontent, disgrunt, low profits, and all the kindred diseases that sap the life out of business. Price cutting is just as much a sign of poor business as open umbrellas are a sign of a rainy day. The first thing we are interested in is our business and we stop to consider this miserable subject only because it interferes with our progress and our profits.

That our progress and our profits are not what they should be, we all know.

That general business conditions pertaining to the manufacture and sale of face brick are most unsatisfactory, we have come to realize.

That the whole face brick business taken together is unprofitable and actually losing money, is a fact that we have got to realize.

All our discussions then, no matter what titles, center on the two great questions: Why is the face brick business not profitable? and what can we do to make it so?

Well—to get down to first principles—it is because the selling price is not enough greater than the cost price. A frivolous answer? Not at all. Simple? Yes, most important things are simple.

There may be other answers. There may be elaborate theories but, when you get down to the last analysis, that answer stands alone: The face brick business is not profitable because the selling price of face brick is not enough greater than the cost price.

What can we do to make it profitable? The way is equally simple. Widen the margin between the cost price and the selling price. And how can we do that? There are two ways. Push the cost price down, or push the selling price up. Which shall we do? and how can we do it?

Can we push the cost price down? Look for a moment at what it contains:

Labor, raw material, fuel, supplies, interest and depreciation, overhead.

Where do you see a chance?

Certainly not on labor—every year sees labor demanding more money for less work.

Not on raw material—few make any charge at all for it and at most it is very small.

Not on fuel—unless someone finds a way of not using it.

Not on supplies—for without exception they are going up.

Not on interest and depreciation—for what we have, we have, and it will go on depreciating and the money spent will accumulate interest. (Anyway, if more plants recognized such an item, cost prices would rise.)

Very little on overhead in most plants.

There is no indication of any radical change in the methods of either making or burning brick, so it would seem as if we were entirely blocked in any attempt to push cost prices down.

Then selling prices must go up. Our reasoning seems sound and conclusive. We have the ever increasing cost of doing business and our growing determination to get a fair profit, an irresistible force, moving upward. When an irresistible force meets an immovable body, what happens? But wait, is that our problem? We have shown the force but where is the immovable body? Selling prices? Those illusive, evasive, illogical things that one man says are here and another there, that are up and down and all around every day? Immovable? The brick fraternity spends half its time chasing prices.

Right there is our problem. We can never move selling prices up until we locate them. We must first find the means of keeping them steady. Many, today, don't know what their own selling prices are. They have a price? Yes, but they cut it, and change it, and discount it until it is unrecognizable. What is the real price? When we can look it in the face, we can tell whether it is right or wrong. Then, if it ought to go up, it will show plainly everyone can see it, and it will go up.

So now we have our problem. Make prices stable. Keep them from wide fluctuation.

How? By agreement? Yes and no.

Not by any agreement one with another to fix a price on a certain kind of brick.

Not by any agreement to name a price and never change it.

Not by any agreement which will bind a man so as to take away his right to freedom of thought and action.

But, by agreement, if possible, by which each man will say two things:

First: I will name a price on my brick which will be the same to everyone.

Second: I will let my prices be free and open to all.

Now a word of explanation. We are considering for the moment only sales to the public. It is not intended that a manufacturer should sell to the public for the same price as to an agent. He never should. Today he sometimes does. It is not expected either that the public shall know what price the agent pays. It is important, though, and essential that every man buying brick should know he is getting exactly the same price as his neighbor.

Selling and salesmanship are not the same today as they once were. They have advanced with civilization. Years ago, buying and selling was entirely a conflict of wits. There was no attempt to tell the truth. No one was expected to. They wouldn't have been believed if they had. The buyer selected some article and offered ten cents for it. The seller tore his hair and swore he would go bankrupt if he let it go for less than eight dollars. So they argued back and forth for hours, each giving a little until at last they reached a common price and the deal was closed. The merchant may have made 1,000 per cent or 10 per cent—nobody knew. He had no price. He started where he dared and ended where he had to. Price cutting and lying was his life and it took centuries of time and civilization to bring the name merchant to represent a man who could be trusted and his business respected.

Times have changed. Conditions such as just related are not tolerated in modern business. Even conditions that a few years ago were considered proper are not tolerated now. New elements have entered into business—consideration, fairness, frankness—and these elements are gaining strength.

It is no longer considered smart or clever to bargain with a man until you know he will lose money and then hold him to his unfair contract. I have seen business given to a man at prices above what was offered because the buyer knew that the price offered would not cover a proper performance of the work at a fair profit. Was that sentimentalism? No—it was good, honest, modern business.

Go into the modern store to buy a pair of shoes. Does the clerk show you a pair and then, sizing you up, name any price on them he thinks you will fall for? Not at all. The chances are the price is marked on the shoe in plain figures. Undoubtedly the same shoe is in the front window, displayed with the price right on it, saying to anyone who wants to pass by and look in—"This shoe sells for $3.50." Do you haggle over the price and tell the salesman you will buy for $3.25? You never think of it. You know instinctively that the price is fixed and will not be changed until it is changed to everyone. If you want a cheaper shoe, you say so. If you want a different kind of shoe, you say so, but you don't argue the price.

Why don't you argue? Because you understand that the policy of that store is to have one price on an article—that price plainly displayed, and the same price to all. You know the store maintains that policy rigidly, that your money will buy as much as any other man's and you are satisfied.

An open price free to all and a uniform price alike to all are the modern watchwords of buying and selling. So quickly do such new elements come into business and so promptly are they assimilated that it is hard to realize that five years ago such a policy was rare, ten years ago it was unknown. Today the policy is jumping from one business to another, spreading like a forest fire; tomorrow it will be a law of the land. You doubt? Are not railroads compelled to publish their tariffs and furnish services to all alike? Are not express companies compelled to publish their rates and make them the same to all? Can a telephone company or an electric light company furnish you service for one price and me the same service for another? It is the advance of public opinion and it is taking hold fast.

Why do people argue about prices and feel dissatisfied? Is it because the price is too high? No. Just what the price is has very little to do with it. People in Columbus, Ohio, argue about a brick costing $15.00 per thousand just as much as people in Detroit do over the same brick at $20.00, or people in Milwaukee over the same brick at $25.00, or people in Boston at $30.00. Why? Because none of them is sure he is getting the bottom price. A man doesn't care so much what the price is, but he does want to know that no one can buy the same article any cheaper.

Two men are competitors. They fix a price and agree positively to stick to it. They separate. Immediately they begin to distrust each other. Soon there are rumors of cuts, then attempts to evade the agreement, it is stretched, torn and war is on.

But, let those men agree to a free, open price, and let them mark their goods plainly and the price will soon become fixed.

Why? Because each man has been in the habit of cutting prices as he understood his competitor had or was going to. When the day comes he can walk into his competitor's store and see the prices on his goods, not in cipher, but in plain figures, his chief incentive to cut prices will be gone.

When a contractor, an architect, or an owner can feel sure that the price you name on a brick is the same to him or any other man, he will stop arguing price and turn his attention to just which brick he wants.

When the manufacturers and dealers find their competitors are pursuing that open policy and that they can know their prices, there will be little price cutting.

Why does a brick man cut his price? Because he doesn't think his brick are worth the money? No—because he is afraid his competitor with a similar brick has already cut to get the job.

Why does a brick man give a contractor 50c or so a thousand brick? To help the contractor? No—because he is afraid his competitor has or will do the same thing. He scares himself out of 50c or $1.00 a thousand.

Show me the man who is afraid to hold his price when he knows his competitor is doing so and I will show you a man who is down and out.

Once let prices become open and stationary and we give room for salesmanship.

Price cutting is not salesmanship.

Bribing is not salesmanship.

Misrepresenting is not salesmanship.

It used to be a saying that salesmanship was the art of making a man buy what he didn't want.

That may still be the conception some men have but it does not agree with modern practice.

The success of any business depends on its customers being satisfied.

Salesmanship is the art of making a man buy what he ought to buy, what he will be satisfied with afterward.

If we could sell brick to every man who ought to have brick we would be swamped.

Let us get up to date: Put aside price cutting, misrepresentation, and kindred practices; realize that our interests lie together, not apart: put brick in the places they ought to go, and bring our business to be respected by the public.

There are brick men today who see every other brick man as a wild beast ready to tear them to pieces, who can't imagine co-operation, and who don't believe there are such things as consideration, frankness and fairness in business.

There are brick men today who bribe, rebate, misrepresent, deliver inferior goods and commit all the other crimes of commercial greed.

There are brick men today who just want to be disagreeable and different and not fraternize.

There will probably always be some such. Let them haggle and fight.

But there are enough who have seen the light. Let them keep their faces to it. Take up the slogan of good salesmanship and better business: a uniform price, a free price, consideration, fairness, frankness.

Indian Pottery

An Industry That is Fast Becoming a Memory Owing to the Dissemination of What Remains of a Once Powerful and Prosperous Nation

By White Eagle

HDE DA SKA (White Eagle) is a full blooded Sioux. His manuscript shows a breadth of observation and a fanciful retrospection that is a revelation to the man who believes that Indian education is a doubtful success, if nothing worse can be said for it. In entering the ranks of magazine writers, White Eagle is giving his race a lasting benefit.

PEOPLE speak of clay as "common" and so, many times, it is; but it is these "commoner" things that prove indispensible to human life, and to this, clay is no exception.

In days gone by, when man's wants were few, he found in Nature the things that most easily and aptly supplied these wants. He made his weapons of stone, and with them killed the animals that supplied him with food and clothing, even with shelter. But as the dawn of civilization came, mankind sought new ways of supplying his needs, and in clay a grateful material with which to make the things he wanted.

So many of the useful things of today had their beginning in primitive times, and their conception in the thoughts of primtive men.

Savage races are, or were, continually on the move, much like the wild game they hunted and fought. Water, next to air, is the greatest necessity of life to all living things. And since water was not found in every place, the necessity of transporting it brought the wish and then the work that made the water-carrying jar or pot.

Many of the necessities of today, and luxuries of yesterday, are the result of accident. So in the long ago, as the early man sat idly on some clay bank, digging his toes into the yielding, moist earth, and enjoying the "feel" of it, this accidental "pugging" may also have taught him many interesting and useful things. In idle curiosity, perhaps, he began to mold this clay into various forms, and, since the hands that molded it were purposeless, these forms were, in all probability, small and almost useless. But it may be that they taught him to think, and the thought may have been "If this little cap that I have put upon my finger were large enough to go upon my head—or larger—it would serve to carry water, or hold the grain for another season's planting."

White Eagle (Hde Da Ska)

The throwing aside of the small shell-like clay toy, and the subsequent drying in the sun, until the yielding "cap" of the day before was a hard, almost impervious cup today, may have shown him the art of sun drying. The fact that water would filter through the clay walls may have caused a quick drying in a wood fire and—burning was discovered.

In Arizona and New Mexico the Indian potter still works, and his craft is nearly as crude as it was in the day when the first clay bottle was fashioned, dried and burned. In the making of the larger pots, for instance, one part is made at a time. The body is first made from a single piece of clay, that is laid on a flat stone and rolled out with the hand, or with a flat stone or shell. A form, or mold the shape of the vessel that is to be made, is then used, the flat piece of clay being rolled around the form. What clay is left is cut away with a sharp stick or an old knife blade, if the potter be lucky enough to possess the latter. The seams are obliterated by dipping the fingers in water and rubbing the places where the edges of the clay blanket were joined. Another piece of flat clay forms the bottom and is joined in the same way.

An Old Indian Vase. The Colors are Black, Red and White.

Then the surface is "spanked" with a little wooden paddle which gives the clay firmness, the rest of the work being done with the fingers. The form is then taken out and the piece is allowed to dry, when the bottom is rubbed with smooth stones.

In making vessels with lips and handles such as is shown in the small picture, the body is formed as above, the form taken out, the hand inserted and the lip molded on with the fingers from another piece of clay. Very large vessels are made by coiling or building up, piece by piece, of rolls of clay and working to the desired form, size and shape.

The squaw in the photograph who is squatting on the blanket is painting the small vessels and getting them ready for burning. In old days the pottery was burned in a sort of pit in the ground, so I have heard old Indians say. But the pottery in the large picture, which represents the kind that is made today, is burned in dry sheep manure, that is taken from the corrals and dried. This makes a wonderfully hot fire and does not smoke the pottery at all.

The paint used to decorate is made of minerals found in New Mexico and Arizona. These minerals are ground fine between stones, mixed and applied to the work with a small brush made of coarse hair of any kind, tied to the end of a small stick where regular brushes cannot be had.

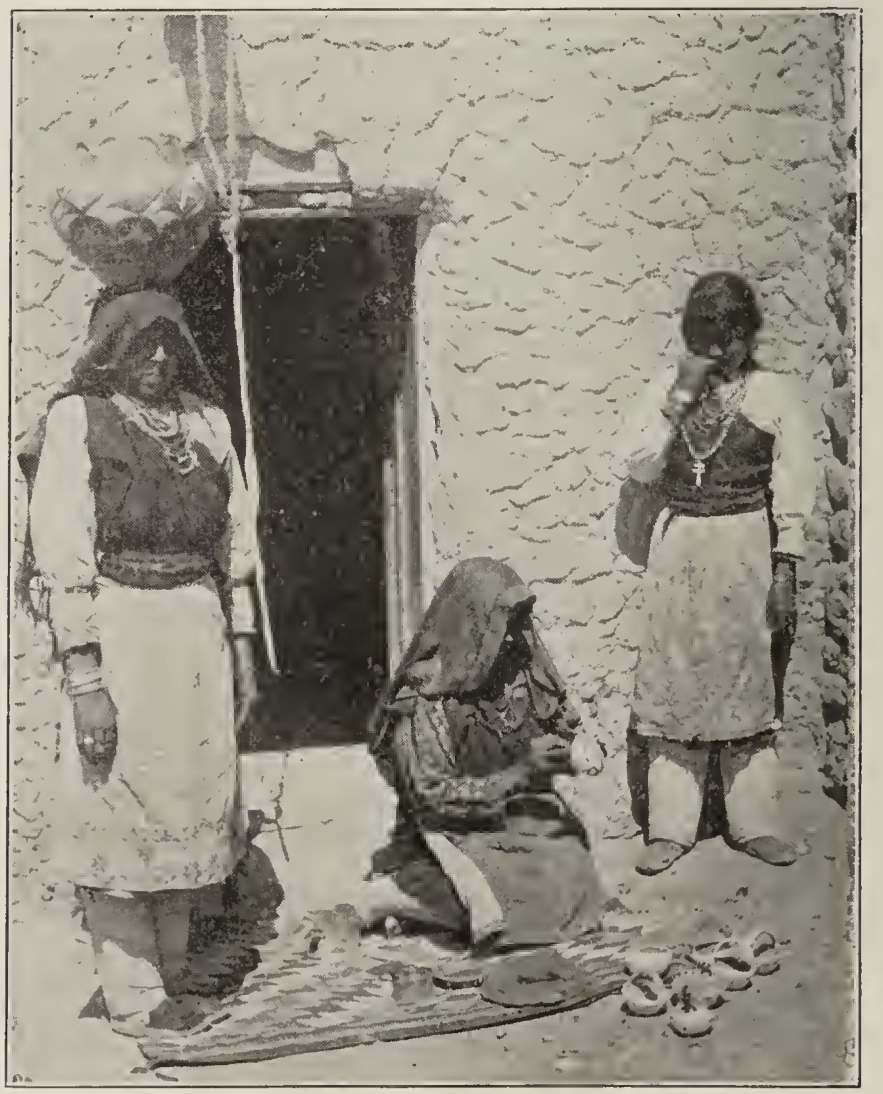
The art of the primitive red man consisted simply in painting the rude images of figures, animals, and symbols which meant much to him but little to those who did not understand his mythology. Much of the Indian pottery of today has very pretty scroll work painted on it but most of it is still decorated much in the old way.

Indian pottery of today does not compare, at least not all of it, in color, finish and design, with the old. It is said that there is but one squaw living who knows the secret of making the old pottery.

Many forms of vessels are made, such as plates, bowls, jars, bottles, etc., and on up to the fine vases and funeral urns. The funeral urns, sometimes found in old Indian graveyards, are made of coarse clay, partly or entirely ornamented and without handles. They are from ten to fifteen inches high and with a wide mouth. Indian mounds, about which much has been written, are simply Indian graveyards. It was a custom of the Indians to deposit their dead upon burial scaffolds or in trees. At given seasons the bones were gathered together and buried. It was believed that the warrior would need food, his pipe, and weapons on his long journey to the Indian Heaven and food was placed in the urn which, with his weapons, pipe, etc., was buried with him.

The Indians of Arizona and New Mexico are the greatest Indian pottery makers of today, in fact, almost the only ones. My tribe, the Sioux, claim to have never made pottery. Yet the oldest Indians of the tribe claim to have seen vessels of clay used by their parents. Both my mother and father have been dead for years yet I remember the earthen jars and pots they used and with which they were so careful. Some claim this pottery was gotten from the Omahas and Pawnees with whom the Sioux often had battle. Others claim that the Mandan Indians, close relations of the Sioux but with whom the Sioux were always at war, made it.

The Indian potters are always women. The proud warrior of old and his modern descendant, scorn the craft of fashioning, decorating and burning clay as a peculiarly feminine and degrading occupation. It would indeed surprise these red men, if they could look upon the army of men at work in the Middle West, almost as much as would the dainty ware itself.



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Women Potters (Indian) at Isolata, New Mex.

Firing and Burning

Being the First of a Series of Articles on the Production of Intense Heats and their Application to the Manufacture of Clay and Rock Products

By Ernst Schmatolla, Dipl, Ing.

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DILIGENT search of the technical libraries, and the various inquiries that appear in print from time to time, indicate a dearth of literature, written in English, on the subject of kilns and burning. German libraries are rich in information on these important topics, and to them, the author of this article has had the pleasure of making several contributions, some of which have gone through several editions.

In order that a book of this kind may be given a wide usefulness, I have arranged to write it as a series of articles, to be published in "Brick and Clay Record," and later to be compiled in a bound volume, under the title "Firing and Burning." I will aim to make it of practical use to everyone interested in the manufacture of clay ware and avoid, so far as is possible, the use of laboratory terms, in order that the greatest good may be done to the greatest number of readers.

The first part will give a more general description of the combustion and burning processes and of the fundamental systems of furnaces and kilns, also the more important chemical and physical laws which rule the combustion, while the second part will compile all the special systems and designs of furnaces, gas producers and kilns which are worth while knowing.

This part will also contain practical instructions for building and operating such devices.

Builders of kilns and similar equipments are invited to contribute particularly to the second part to make it as complete as possible.

It is the intention of "Brick and Clay Record" to continue this work by the addition of supplementary articles with the idea of embodying them in later editions of the same book.

CHAPTER I.

General Chemical and Physical Principles.

By "firing," generally speaking, we mean the production of heat by the combustion of fuel and by "burning," the application of this heat for the purpose of producing a certain product from clay or rock or mixtures of clay and sand or other mineral compounds or to get this product in a fixed shape of brick, tile, pipe, etc.

Combustion is a chemical process producing physical effects. It is about the same process upon which the human and animal life is based. It requires at least two elements: The carbon (C) which is contained practically in all food and fuel, and the oxygen (O) of the air, which combine and form a gas (CO_2) which is heavier than air (according to the chemical formula $C + 2O = CO_2$).

In a breathing of a human being or animal the combustion produces only a certain moderate quantity of heat which keeps the body at a certain temperature. In a furnace, through which large quantities of air are drawn by means of a chimney or induced or forced by machinery (blowers, fans, exhausters, etc.), the combustion process is a rapid one and therefore a high temperature is produced.

The natural and most economical means by which a furnace or kiln "breathes," and so conveys the air to the carbon or fuel and removes the products of combustion which are the combustion gases, is the *chimney stack,* which is working under the physical law of *gravity* in its reversed form of *buoyancy.* To explain this better I have designed diagram No. 1, which shows a chimney stack (E) with a regulating valve (V) on top and a shield (S) which surrounds the valve to protect it against the influence of the wind.

At the lower end the chimney stack (E) is connected to one or more furnaces or kilns (not shown) by means of a flue (F) and the two doors (D) are arranged for the purpose of cleaning the chimney and flue and for starting a temporary fire upon the removable grate (R), the fire and grate to be taken out after the chimney is warmed up and the draft started.

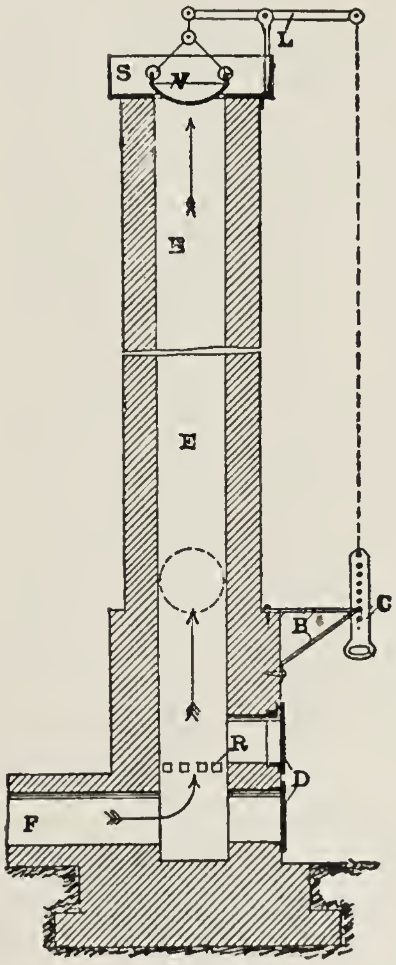

Figure 1.

The law of nature, which chiefly governs the draft, is called the Gay-Lussac law, according to which the air and any gas or gas mixture expands for each centigrade of temperature by 1/273 of its volume. In other words, the volume of air or any gas will double when heated to a temperature of 273° C. (523° F.) or the same volume will have half of the weight at the higher temperature (523° F.) which it had at the lower temperature. Therefore, a balloon which is filled with heated air or a gas lighter than air will rise just the same as a lighter body rises in water. (In the diagram No. 1 the dotted circle may indicate a balloon.)

It is easy to understand that buoyancy is a power acting in opposite direction to gravity and that this power can be measured and figured. Hence it is also easy to understand that if the chimney flue (E) is filled with gas or heated air which is lighter than the surrounding air, the rising gas column will produce a vacuum at the lower end of the chimney and create draft in the furnace or kiln which is connected to the chimney by the flue (F).

By means of the valve (V), which hangs on a double lever (L) and is connected to a regulating gauge (C), the draft in the chimney, and by this also in the furnace and kiln, can be exactly regulated, and even a certain pressure can be obtained when the valve is almost closed, which is important for many burning processes, particularly where producer gas is applied.

In a later chapter the means and devices for producing draft and pressure artificially will be dealt with, also datas for calculating and figuring will be given.

CHAPTER II.

The Chemistry of the Combustion Process.

Carbon, which is classified as an element, is represented chemically by the symbol C. and has an atomic weight of 12. It forms the most important combustible constituent of all natural fuels and taking these in the order of their age, we have the following list: Wood, peat, lignite, brown coal, soft or bituminous coal, hard or steam coal, anthracite and graphite, the latter used as fuel only for laboratory purposes. The purest carbon which is found as a mineral in nature, is the diamond. Carbon is also an important element in the natural liquid fuel petroleum or crude oil and in the natural gas.

Another combustible element, which is contained in almost all natural fuels, is the *hydrogen* (chemical symbol H and atomic weight 1). It is a gaseous element and the lightest gas known. Burnt in air it combines with the oxygen, producing water (HO_2).

As a combustible impurity *sulphur* (chemical symbol S, atomic weight 32) is found in most natural fuels as an impurity. It burns in oxygen or air, producing sulphurous oxide. (SO_2).

The two constituent gases of the atmosphere, *oxygen* (chemical symbol O, atomic weight 16) and *nitrogen* (chemical symbol N, atomic weight 14), are also contained in most of the natural fuels.

The air is a mixture, not a chemical combination of oxygen and nitrogen, in round numbers 23 per cent (weight) of oxygen to 77 per cent of nitrogen or in volumetric proportion, 21 oxygen to 79 nitrogen.

The nitrogen is not a supporter of combustion and has importance for the combustion only as a diluting constituent of the air.

The combustible element, carbon, when burnt in oxygen or air yields two compounds, namely, *carbon monoxide* and *carbon dioxide*.

Carbon monoxide is formed by the union of one atom of carbon with one atom of oxygen, its chemical symbol is CO. This compound is not the product of regular combustion, but is formed only under certain conditions which will be explained later.

Carbon dioxide is formed by the union of one atom of carbon with two atoms of oxygen (chemical symbol CO_2), and is the regular product of combustion of carbon in air, while carbon monoxide (CO) is a combustible gas, which, being poisonous, should not be discharged in the atmosphere; it unites with another atom of oxygen and yields carbon dioxide (CO_2).

These processes of combustion are represented by the following formulas:

(1) $C + O = CO$
Carbon + Oxygen = Carbon Monoxide

(2) $C + 2O = CO_2$
Carbon + 2 atoms of Oxygen = Carbon Dioxide

(3) $CO + O = CO_2$
Carbon Monoxide + Oxygen = Carbon Dioxide

Carbon monoxide can also be formed by the reduction of carbon dioxide in the presence of red hot carbon, according to the following formula:

(4) $CO_2 + C = 2CO$
Carbon Dioxide + Carbon = Carbon Monoxide

Another process, which occurs in many furnaces, gas producers, gas flues and kilns, is represented by the following formula:

(5) $2CO = CO_2 + C$

This means the decomposition of carbon monoxide into carbon dioxide and carbon, the latter appearing in the form of soot or smoke. This decomposition occurs when producer gas or combustion gas containing carbon monoxide is passing at a comparatively low temperature through iron pipes or through flues which are coated with soot. The most favorable temperature for this process is around 500° C. (932° F.) while it hardly ever occurs above 800° C. (1472° F.).

For starting combustion it is necessary to apply the *ignition temperature* to the carbon or fuel, which is about 700° C. (1300° F.) for coal.

One kilogram of carbon when burnt to carbon dioxide yields 8.137 calories of heat, while only 2.453 calories are produced when carbon is burnt to carbon monoxide only. The formation of the latter by the reduction of carbon dioxide already formed is a heat absorbing reaction and 3.159 calories disappear.

It is also necessary to consider the changes involved when water, vapor or steam (H_2O) comes into contact with carbon at a red heat or higher temperature.

These changes are represented by the two following formulas:

(6) $H_2O + C = CO + 2H$
Water + Carbon = Carbon Monoxide + Hydrogen

(7) $2H_2O + C = CO_2 + 4H$
2 mol of Water + Carbon = Carbon Dioxide + Hydrogen

According to Formula 6, the formation of carbon monoxide is prevailing when steam or water vapor act upon carbon at a temperature higher than 1000° C. (1832° F.) while, according to Formula 7, the formation of carbon dioxide is prevailing at a lower temperature. Hydrogen is liberated in both cases.

Most of the natural fuels contain chemical compounds which are known as hydro-carbons, being combinations of carbon and hydrogen. These hydro-carbons are either solid or liquid or gaseous. Two of the most important are:

Methane or Marsh Gas—CH_4.
Ethylene or Olefiant Gas—C_2H_4.

In addition to the carbon and besides the hydrogen, the natural fuels contain considerable percentages of oxygen, which remain after the fossilization of the cellulose ($C_6H_{10}O_5$) of the original woody fibre has proceeded through its various stages.

The combustion of the Methane (marsh gas) is represented by the following formula:

(8) $CH_4 + 4O = CO_2 + 2H_2O$
Methane + Oxygen = Carbon Dioxide + Water and the ignition temperature is at 667° C. (1,250° F.).

The formation of visible smoke during the combustion of natural fuels is chiefly due to the liberation of these hydro-carbons and to the lack of oxygen or air, essential for their complete combustion to carbon dioxide and water at high temperatures. These hydro-carbons decompose and the carbon separates as soot. If insufficient oxygen or air be present or the temperature falls below the ignition temperature 700° C. (1300° F.), these particles (of soot) remain unconsumed, although all the hydrogen may be converted into aqueous vapor.

If not sufficient air is present for complete combustion the following process may occur:

$CH_4 + 2O = 2H_2O + C$
Methane + Oxygen = Aqueous Vapor + Soot

By the incomplete combustion of Ethylene increasing amounts of soot will be produced according to its higher percentage of carbon to hydrogen.

CHAPTER III.

The Combustion of Solid Fuels Upon a Grate.

To illustrate this chapter which does not, as yet, give a detailed description of the various grate-furnaces the author has drawn diagrams No. 2 and No. 3 (the detailed description of grate furnaces being reserved for a later chapter.)

Diagram No. 2 shows a common grate furnace for direct coal firing with two layers of fuel upon the grate, the lower, light shaded layer is supposed to be a previous charge of coal which is partly burnt out and chiefly consists of red-hot (or white-hot) carbon mixed with ashes or clinkers—the upper, darker layer indicates a fresh charge of coal.

Supposing that both layers together are only of such a thickness that sufficient air for complete combustion can pass through the grate spaces and the spaces between the lumps of carbon and coal, the combustion process will be the following:

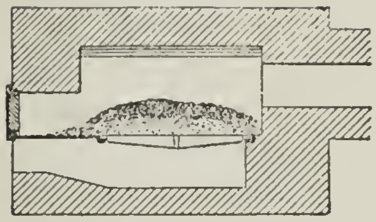

Figure 2.

The oxygen of the air which passes from the open ashpit under the grate through the grate spaces will combine with carbon and form carbon dioxide (according to Formula 2, Chapter II.), producing for each kilo of carbon 8,080 calories or for each pound 14,550 B. T. U.* The layer carbon being thin, only a surplus of unconsumed oxygen of very high temperature will reach the coal in the upper layer and consume the hydrocarbons, chiefly methane gas and ethylene-gas, producing carbon dioxide and water (aqueous vapor—see Chapter II.). These hydrocarbons have a still higher heating value than the carbon and the heat produced is carried by the combustion gases in the form of flame to the kiln or burning chamber to which the furnace is connected, producing there the effect which we call "burning."

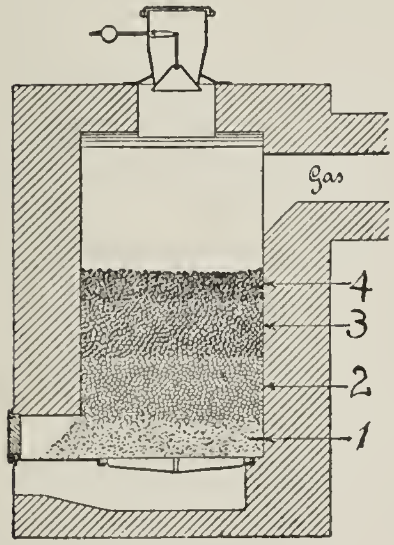

Figure 3.

If the draft is not strong enough or the layers of fuel upon the grate too thick to admit sufficient oxygen to the upper layer of the green coal, the hydrocarbon gases will escape unconsumed and part of the heating value of the coal will be lost through the chimney in form of smoke, as explained at the end of Chapter II.

The draft may even be so weak that the combustion is not completed in the lower layer of the carbon so that in consequence of not sufficient oxygen or air being admitted carbon monoxide is formed (according to Formula No. 1, Chapter II.). The carbon monoxide is lost through the chimney without being seen.

In most of the down-draft kilns, which are equipped with low chimneys only, such losses will always occur, and it is easy to understand that it would be much better to build higher chimneys with a valve on top which allows regulation of the draft according to the temperature existing or required in the furnaces and kilns and according to the temperature and conditions of the atmosphere.

Diagram No. 3 shows another grate furnace which may be reconstructed from the previously described grate furnace (diagram No. 2) by raising the four walls and the arch with the outlet above the grate and arranging the feed door or feed openings (which may be double gate hoppers) in the arch. This arrangement allows the keeping of a thick bed of fuel (3 to 6 feet high) upon the grate for the purpose of producing a gas (producer gas) which may be conveyed through longer flues to various furnaces or kilns to be consumed close to or within the chambers or kilns where the burning process is performed.

In diagram No. 3, four layers are marked by arrows; the lowest, marked by arrow No. 1, is supposed to be a layer of clinkers (about 9 inches high), which are kept upon the grate to protect it; in addition to this, water is kept in the pit under the grate, producing aqueous vapor (H_2O). Arrow No. 2 indicates a thicker layer of glowing (red or white-hot) carbon. The thick layer and the chemical (reducing) action of the glowing carbon does not allow a permanent formation of carbon dioxide, and carbon monoxide, a combustible gas, with only a trace or a few per cents of carbon dioxide, is formed (Formulas 1 and 4, Chapter II.).

By the formation of carbon monoxide or the incomplete combustion of the carbon, less heat is produced in the producer itself (2,450 calories per kilo of carbon), but this heat is sufficient to raise the temperature of layer No. 2 to white heat (1,300° C., or 2,370° F.), which also secures a complete decomposition of the water vapor into carbon monoxide and hydrogen (Formula 6, Chapter II.). This thick layer of hot carbon does not allow any free oxygen to reach layer No. 3, which is practically kept in the same condition as in a retort. In this layer the coal is transformed into coke by the heat which rises from the lower layers, liberating the hydrocarbon compounds which are contained in most of the natural fuels (tar in form of a vapor, methane and ethylene in form of gas). These combustible compounds together with the carbon monoxide and the diluting nitrogen of the air form what we call producer gas, which, when a good, dry coal is used, is of such high temperature (500° to 700° C. or 900° to 1,300° F.) that economy suggests the putting of the gas producer as close as possible to the kiln or kilns, to avoid the loss of heat which occurs in long flues by radiation or condensation of tar and formation of soot. It is a very important item, too, for the shorter the gas flues are the easier and quicker they can be cleaned.

CHAPTER IV.

Solid Fuels and a Simple Way to Test Them.

Most of the natural fuels used by the manufacturers are solid fuels. The first fuel used on earth was wood, and this fuel is still used in many countries which are still rich in wood. The chief combustible compound of wood is carbon, the second hydrogen (about 12 hydrogen to 100 carbon). The third compound is oxygen (about 80 oxygen to 100 carbon). The average heating value of dry wood is about half of a good coal or anthracite, which produces about 8,000 calories or 14,000 British thermal units.

The fossil fuels have been formed by the decomposition of plants and trees (cellulose) through the agency of heat and pressure, under a cover which prevented the admittance of air. Some of the younger fossil fuels, peat and lignite, still resemble wood or show the woody fiber. The older a fossil fuel is, the smaller is its percentage of oxygen, and also the percentage of hydrogen decreases. Peat still contains an average of 50 per cent of oxygen and 10 per cent of hydrogen to 100 weight units of carbon. Lignite, 40 oxygen and 8 hydrogen to 100 carbon, bituminous coal 20 oxygen and 6 hydrogen to 100 carbon, anthracite, between 1 and 2 oxygen and 3 hydrogen to 100 carbon. Of course, these figures vary in the various kinds of coals according to their age, etc. There are semi-bituminous and semi-anthracite coals, there are fibrous, earthy, conchoidal and bituminous kinds of peat, and lignite, the calorific value of which varies in dry state between 8,000 and 12,000 B. T. U. Peat is only very little used in this country (U. S. A.), but lignite, of which some states (for instance, Texas, Dakota and California) have rich deposits, is coming more and more into use. In Germany and Austria at least half of the clay, ceramic and lime industry is using lignite or brown coal exclusively, and with very good results, particularly by using gas producers for such fuels.

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*Calculating and measuring the heating value of fuel and temperatures will be dealt with in a later chapter.

Practically the value of fuels is not judged from the chemical or elementary analysis, but from their percentage in:

(a) Moisture.
(b) Volatile matter.
(c) Mineral matter which is not combustible, or ashes.

Moisture is water which can be removed by drying, or by quick heating at 100° C., or 212° F., the water boiling temperatures. The volatile matter contains the combustible gases, hydrogen(hydrocarbon vapors and gases, methane, ethylene, also carbon monoxide, some carbon dioxide and nitrogen compounds (ammonia). The volatile matter can be obtained and tested by heating a weighed sample of the fuel in a crucible or retort, which is heated by a flame and then reweighing the sample after all the gas has escaped. The liberated gas can be kindled and burns with a flame at the rim of the crucible or at the outlet jet of the retort.

The mineral noncombustible substances, the ashes, may be obtained and tested by heating the same sample in an open crucible, so that the air which is admitted can consume the carbon and by reweighing the rest of the ashes the percentage of it can be easily found and figured.

A simple device for making such tests is shown by diagram No. 4 in almost natural size. The whole outfit consists of a small porcelain crucible (c) a Bunsen burner or torch (b) an adjustable holder (s) for the crucible and a small balance scale.

The sample tested must be an average sample of many small fragments taken from a big pile of the fuel, reduced to a small quantity by just enough to half fill the crucible.

First, of course, the weight of the crucible must be noted.

If wood is submitted to such a test it will be found that it contains between 15 and 20 per cent of moisture (green wood even more), which is the water liberated by any drying process at or below the temperature of boiling water. If the sample is heated above this point, by slowly raising the temperature of the crucible, aqueous vapor (H_2O) mixed with the vapors of vinegar and wood alcohol will escape; these are already products of chemical decomposition, and it will be noticed that the wood will become brown, resembling lignite coal. In fact, the process in the crucible is about the same process by which peat, lignite and coal have been formed by the fossil change of the cellulose fiber. Proceeding with heating and raising the temperature of the sample in the crucible it will be noticed that a burning gas will escape (a mixture of hydrogen, hydrocarbon gases and vapor, methane, wood tar, etc.), and that the sample will become darker and darker, and will finally be transformed into charcoal. A similar process is applied by the charcoal factories, which, of course, use large retorts instead of crucibles, and make use of the combustible volatile gas of the wood to heat the retorts. Finished charcoal has about the same heating value as anthracite, the latter, of course, being much harder on account of the high pressure under which it has been formed during thousands of years. Wood contains between 0.25 and 0.50 per cent ashes, and the commercial charcoal contains, besides the ashes, more hydrogen and oxygen than a good anthracite, as the charring process is not chemically completed.

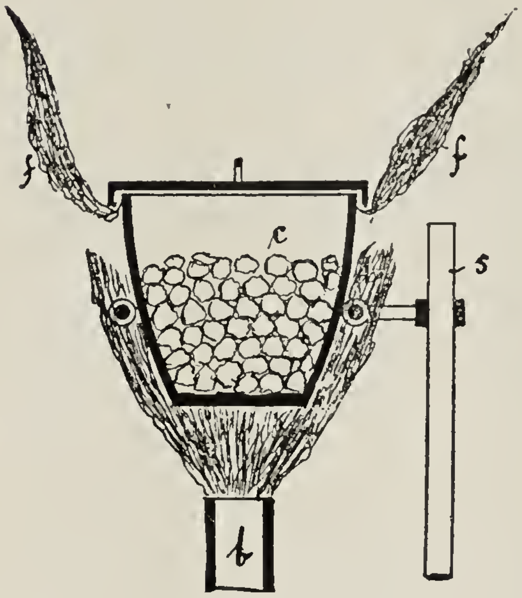


Fig. 4.

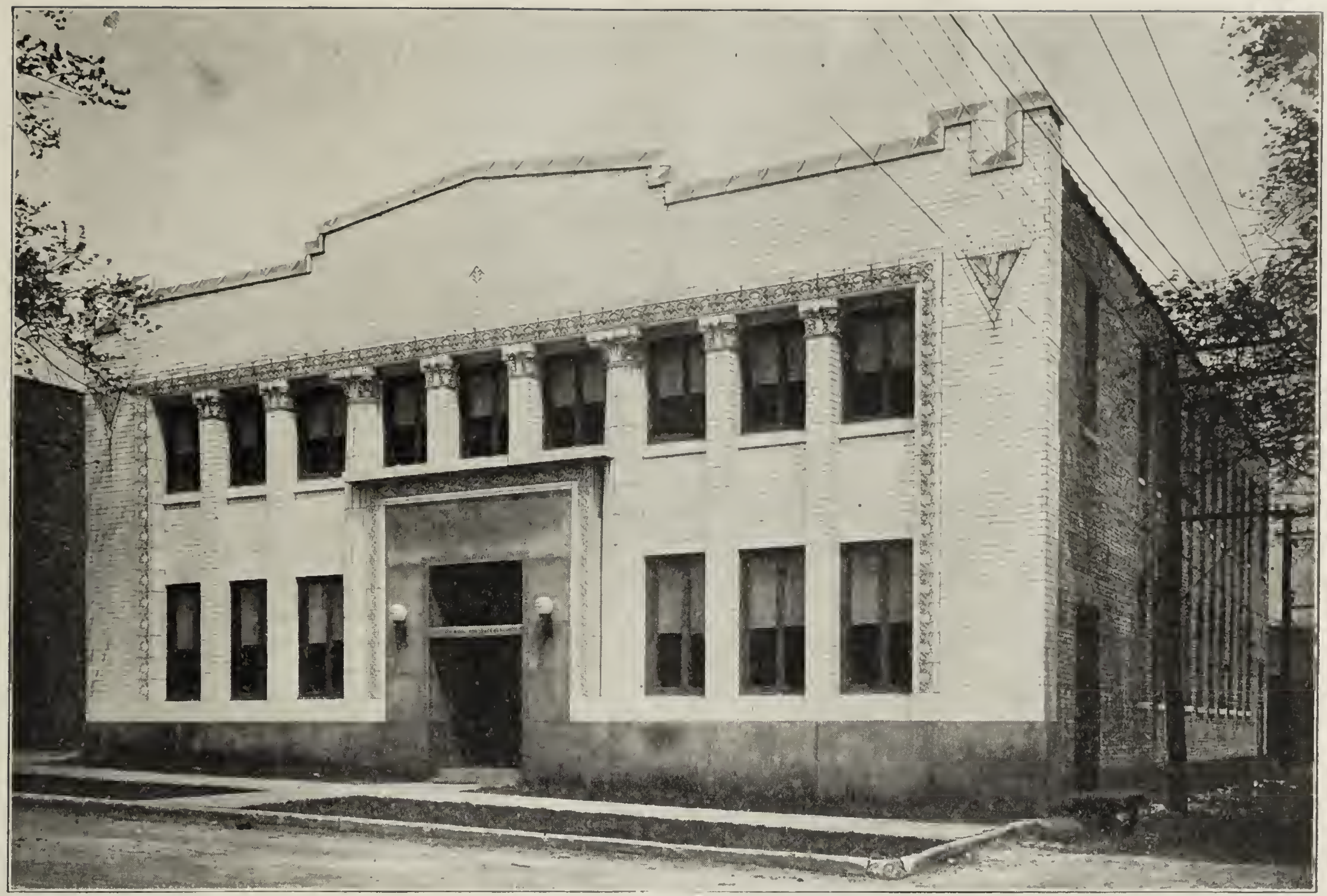
The product which is obtained by a similar process from coal, lignite or peat is called coke. The coke of the two latter fossil fuels is also soft, while bituminous coal gives a hard lump or cake of coke in the crucible. Bituminous coal becomes soft when heated and the small fragments melt together, but the cake becomes hard after the hydrocarbon compounds are expelled by the heat. Most of the American bituminous, or soft coals, contain about 30 (between 25 and 35 per cent) of volatile combustibles, but it will be noticed in making the above described test, that the cake which has been formed from the coal sample takes about the double volume of the sample on account of having been spongy before hardening.

(To be Continued)

Birmingham, Ala., Ships Brick to Florida.

The city council of Orlando, Fla., has accepted the bid of the Copeland-Inglis Brick Company of Birmingham, Ala., for 5,000,000 or more paving brick, at $27.25 per M., f. o. b. cars Orlando. The price was twenty-five cents lower per thousand than that made by the Southern Clay Manufacturing Company of Chattanooga, the only other firm competing. Under the contract, brick will soon be coming in and the big undertaking of paving the streets will be started. Just how soon the first consignment will arrive, cannot be stated, but Mr. Inglis, representing the firm, states that the company has stock on hand to meet all demands. The monthly shipments are expected to range from 400,000 to 800,000, according to the rapidity with which the brick are used in the work.

We Check Your Freight Bills
See Page 1396



The Jewell Laundry, Entire Front White Enameled Brick and Terra Cotta.

A White Faced Laundry

A Short Story Commending One Builder's Forethought and Complimenting Hy-Namel Brick

CONSIDERABLE thought is being given, nowadays, to the psychological effect of the outside of a building upon the passer-by. It has been noticed that a favorable impression can be created in this way, and when this impression is given the thousands that pass and repass, it has a marketable value.

For this reason, thousands of dollars are spent on show windows and the earning power of a heavily wrought canopy is well understood by shops that cater to the best class of buyers.

There is no doubt but that this commercial instinct dictated the choice of enamel brick in the Jewell Laundry, illustrations of which are shown on this and the succeeding page. There is nothing particularly romantic about a laundry, but its usefulness lies in the work it does, keeping clean the husks of humanity. So if a psychological effect is to be gained, it is by accenting cleanliness.

Notice the illustrations. Wouldn't you feel more like sending your "family wash" to a laundry that looked like that, than to one that was housed in a dingy, dirty looking structure?

In this building, more than 30,000 Hy-Namel Norman brick were used, enameled on the flat, which gave a laying surface of 12 by 4 inches; this means that, aside from the 5,000 Hy-Namel molded brick, 10,000 square feet of sanitary, pure white, glistening surface was built in and on this building. Even the engine room is lined as carefully as though it were the bath room of a multimillionaire, and the walls of the room in which the ironing apparatus is operated are alike immaculate.

Aside from the cleanliness of this treatment, which makes for greater efficiency on the part of the employes, the element of safety is considered, for in shops that are lighted brilliantly, as is this, and by daylight reflected from great expanses of white enameled brick, accidents are very rare. And this is important here, since the combination of heat and heavy, fast moving machinery is one that generally takes its toll in industrial accidents.

A prominent Chicago man, discussing the proposition of using such seemingly expensive material in what is, to all intents and purposes, a factory building, said, "It is a peculiar trait of the American people as a whole, that they prefer dealing with people who are prosperous or who look prosperous. The fact that the Jewell Laundry was wise enough to put up this exceptionally attractive building, is an indication to their customers that business is good, which impression

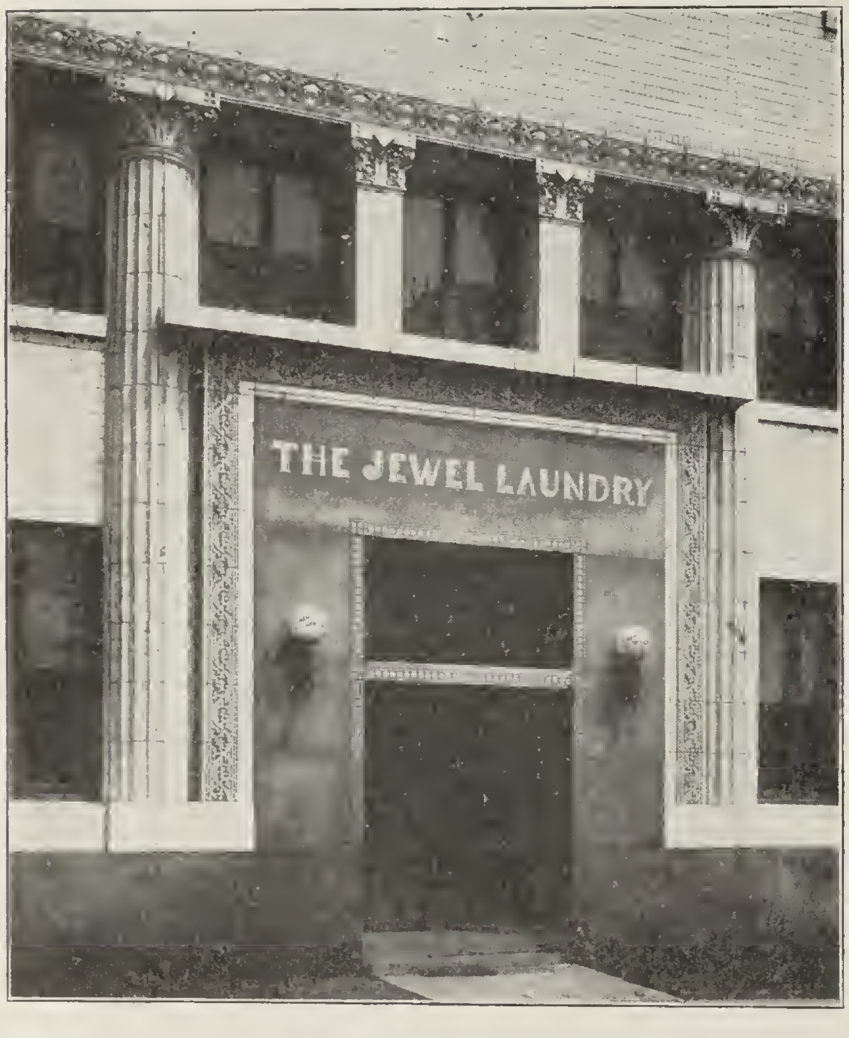
The Inside of the Jewell Laundry, Where White Enameled Brick Insure Sanitary Conditions and Safety to Employes.

always helps business. There is no doubt in my mind but that they are already reaping a good harvest from the investment."

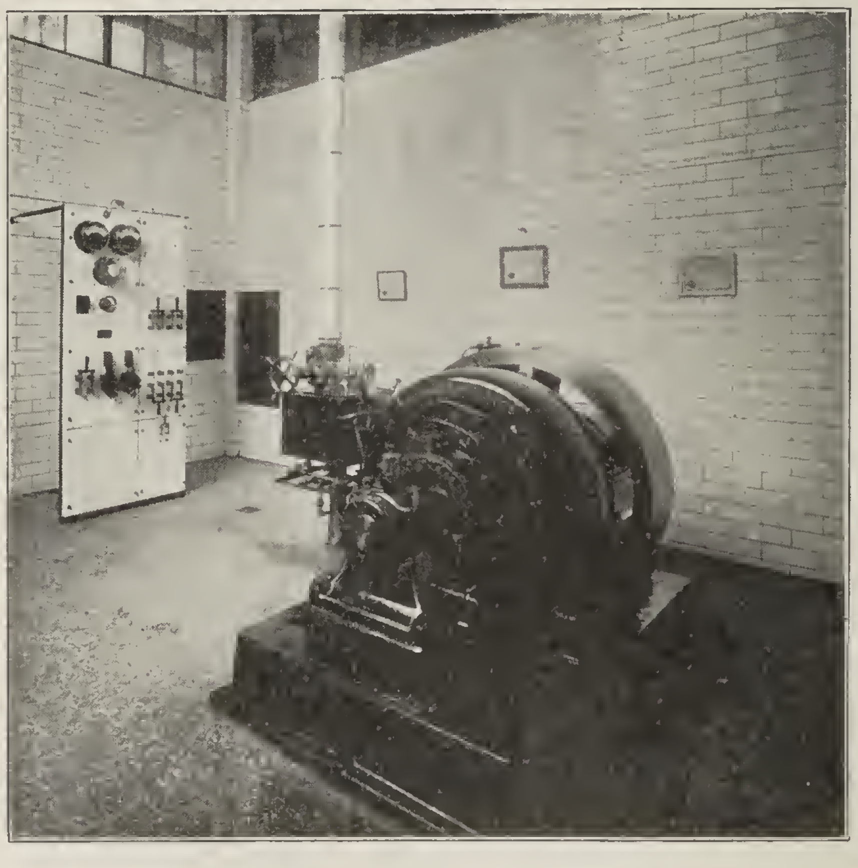
Enamel brick cost more than ordinary pressed brick, and are a little more expensive to lay. The difference, however, is very small, when compared to the total cost of the building. Compared to ordinarily good face brick, which can be bought in some cities for, say, $20 per M., enamels cost (per square ft.) about as follows:

Pressed brick at $20, and laying 7 to the sq. ft..........	$0.14 sq. ft.
American size enamels at $65, laying 7 to the sq. ft......	.48 sq. ft.
English size enamels at $80, laying 5 to the sq. ft.......	.40 sq. ft.
Norman flat enamels at $120, laying 3 to the sq. ft......	.36 sq. ft.

When the advertising value, the assured cleanliness, and the ability to wash down the front once a year and have a brand new building, are taken into consideration, it should offset a great deal of this difference, which, in a building 30 ft. high and 50 long, with 25 per cent openings, would be about $400 for the brick, plus the small amount of extra labor. This is figured on the Norman flat size, which is by far the most economical, as it is enameled on the bed, giving a paying surface of 12 by 4 inches. The brick is 2¼ inches thick, sufficient to bond into the backing up work and form a permanent part of the building. In this, the Norman Flat enamel is superior to tile, which does not invariably, form a good union with the wall it faces on account of the small surfaces presented to the horizontal mortar joints.



The Detail in the Doorway.



The Inside of the Dynamo Room.

READ THE "FREIGHT TARIFFS & TROUBLES" DEPARTMENT ON PAGE 1396. IT MEANS DOLLARS IN YOUR POCKET.

We Extend a "Glad Hand"

"Brick and Clay Record" Bespeaks a Welcome for One of Its Associate Editors Visiting Clayworking Plants

ONE of these days, a man will come knocking at the door of your plant office, and extend to you, personally, "Brick and Clay Record's" good wishes.

His visit to you will not be in the interest of some one who has something to sell. He will not look at your machinery with an idea of showing you why you should "change over" from the thing you are doing, to do something that will give his employer a chance to "junk" your present equipment and supply something that he thinks will do your work better and, incidentally, cost you a lot of money.

He will bring, however, a mind trained in a Ceramic School, developed in the field of manufacture, and polished by the experience gained in each plant he visits. He may leave you some helpful hint. He may take away some idea that will benefit some other clayworker whom he will visit a day, or a week, or a month later. He is a collector and distributor of information. His name is C. O. Arbogust.

If the questions you ask him are beyond his own knowledge, he may be able to put you in the way of having them answered by someone else—someone as disinterested as he, himself, is.

Incidentally, you might show him your machinery. Not only the machinery that is running and doing its little old grind every day, but the machine that has been laid aside —not exactly discarded, but waiting for the day to come when you will use it again. That machinery is costing you something every day you hold it—interest on the amount invested in it, rent for the space it is taking up. You know that if some one came along with a good offer, you would sell it.

Well, here is a man with a good offer—he will know, in all probability, someone who is willing to buy a machine just like that. Just because your plant has outgrown it, is no reason why some smaller plant would not want it, maybe consider it almost too big.

Unused machinery deteriorates, even though covered with vaseline and kept out of the weather. It grows antequated—something better is built, and, if you ever go back to using that kind of a machine, you ought to have the latest model. Hold on to the old, second hand machine, and you won't have the nerve to buy a new six-cylinder-self-starter-detachable-rims-and speedometer type of that particular kind of machine, because you have an old one that ought to be just as good, but isn't.

Look up the old machine, and tell "Brick and Clay Record's" associate editor about it, when he comes to see you. Ask him if he knows where you can sell it, for spot cash and a good price. The chances are, he does.

And, if you want a machine, new or second hand—ask him about that—he may be able to tell you something of considerable importance.

"Brick and Clay Record" has maintained a "Questions and Answers" department that is benefiting not only the men whose questions are answered, but thousands who read the answers. You may have a problem that you want answered, and you may not realize a stamp and a letter are less expensive than an experiment made at the plant. Or it may be that you do not see the advantages offered you by the "Freight Tariffs and Troubles" department. If he shows that to you, he will have repaid you for the "Welcome" he found on your door step and in your hand clasp.

Depend upon it, the man who comes to you, as "Brick and Clay Record's" Right Hand of Fellowship *knows the game*. He will talk intelligently of what he sees and understand what you have shown and told him. You will not waste time in showing him your plant or your product.

You know what benefits you have gained from mingling with fellow clayworkers at conventions. Seldom, if ever, did you come home without some helpful hint as to cost, process, or selling price.

Here, through a travelling editor, "Brick and Clay Record" brings, as it were, a convention of news, hints, help and information to your very door. Give to him as freely as he is willing to give you. Tell him of your successes as well as of your troubles—realize that this is an age of co-operation and the man who withholds information cheats himself more than he does his neighbor.

"Brick and Clay Record's" field man and associate editor is doing a work for the clayworker that could not be done with ink—either fluid or printers'. The inquiries that come to the editorial offices have shown that on countless plants the men who run them realize that something is wrong—that the kilns do not burn right, that the ware cracks, that the labor cost is too high—that something is the matter. Half of the inquiries that reach our "Questions and Answers" department indicate the need of a plant expert. Not that the man in charge does not know his business and his own particular plant needs, but he has lived so long with that plant and grown so familiar with every phase of its operation, that he is not capable of placing his finger on the place where the waste is, or where the equipment is faulty.

Having no machinery, or kilns, or "systems" to sell, this journal could not well afford to have a dozen or more "trouble men" ready to start at a moment's notice, to advise upon and correct the things that are costing the clayworker so dearly. The best it can do is to cover the clayworking field with, first, one clayworking expert, and, as conditions warrant, a second and a third.

In due time, one of these men will come to see you.

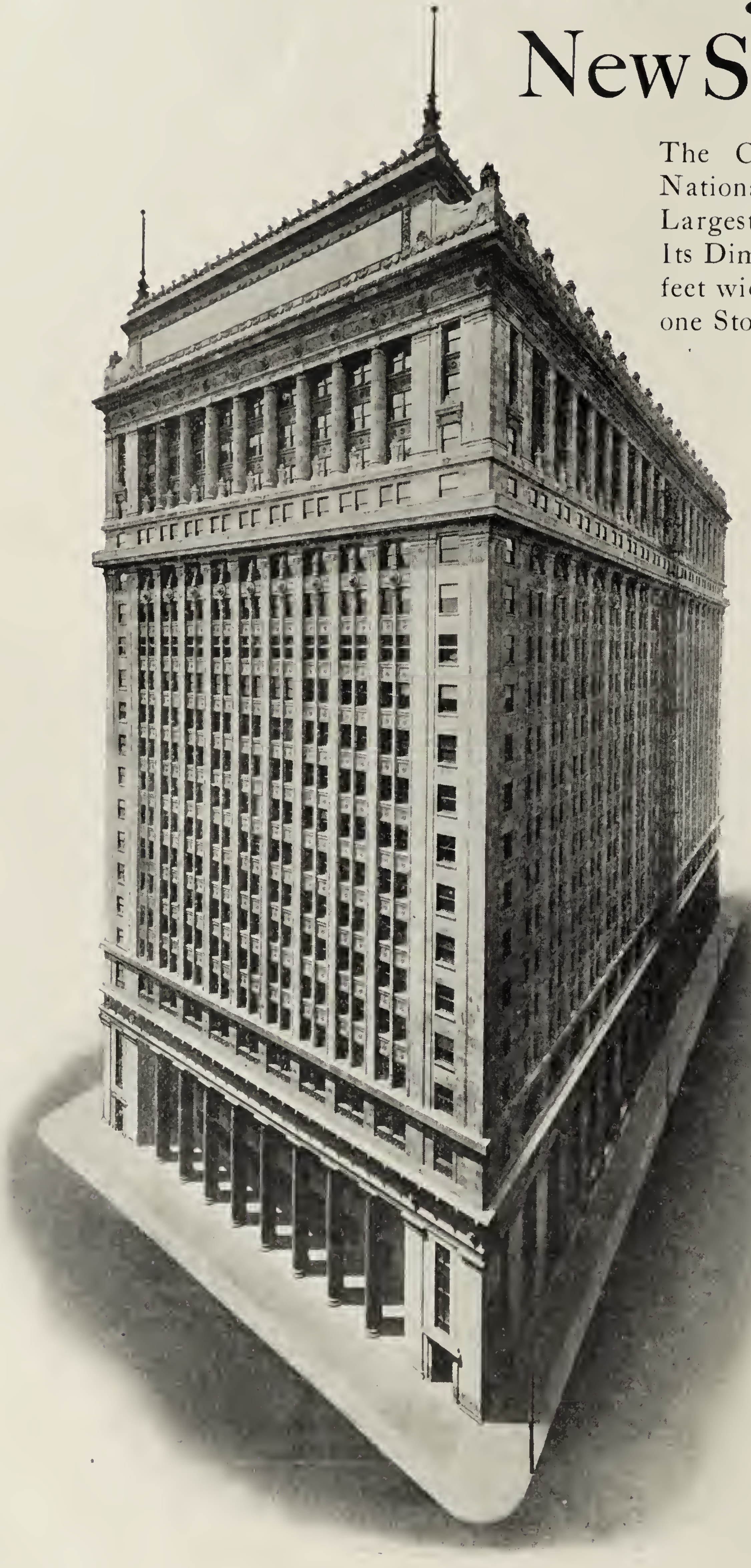
Rest assured he will not advise you to spend a lot of money to correct a minor fault, and so make you worse off than you were before he came. He is paid by "Brick and Clay Record" to gain the "personal touch" of its subscribers. Outside of that, he has nothing to gain, but your friendship and good feeling toward this paper.

Send in Your Freight Bills

there may be and probably is an overcharge upon which you will recover. See page 1396.

Chicago's New Skyscraper

The Continental and Commercial National Bank Building—One of the Largest Office Buildings in America—Its Dimensions are 323 feet long, 166 feet wide and 260 feet high. Twenty-one Stories Devoted Solely to Offices



The Continental & Commercial National Bank Building.

THIS building is faced with granite and terra cotta and is built around a light court 154 feet long, by 54½ feet wide, from the fifth to the twenty-first floors. Twenty-three elevators, eleven of which are express, serve the tenants. Women's rest rooms and emergency hospital are maintained by the management. No detail of scientific building management is omitted, and experts claim that this building is the most lavishly furnished, so far as the comfort and safety of tenants is concerned, that has ever been built in this country.

WITH twenty-one stories faced with architectural terra cotta designed and executed by the Northwestern Terra Cotta Company of Chicago, this building presents one of the largest expanses of ornamental burned clay in the country. Closely approximating granite in color and texture, it is considered a wonderful achievement in the manufacture of burned clay for constructional purposes. No written description can convey any adequate idea of the beauty of this ornamentation or of its soft coloring. When it is considered that the surface is "weatherproof"—that neither sun, nor rain, nor soot can affect it, except very gradually, and that, whenever necessary, a simple washing with soap and water will bring it back to pristine cleanness, the wonder is that stone, in any form, is ever used for facing the buildings of a great city.

The Brickmaker's Home Town—Its Influence on Brick Prosperity

THE prosperity of the brickmaker will be assured just as soon as brick is used intelligently.

Using it intelligently means using it in place of inferior materials and using it properly, in place of improperly.

The first proposition is axiomatic. If brick were used for every purpose where it served that purpose better, at the same cost, or as well, at a less cost than any other structural material, brick plants would be gold mines.

The second proposition is more delicate. Brick is improperly used if in its use, its inherent excellence and beauty are left unexploited.

Strange to say, this improper use of brick is very noticeable in small towns that have one or more face brick plants.

Here, the culls are sold as common.

The manufacturer, realizing that the cull piles represent a manufacturing loss, makes no attempt at sorting. As a consequence, the "dead walls" of that town are unsightly, streaked, sullied with efflorescence, discolored with green, spotted with "rust." Every ill to which face brick is heir is unblushingly shown to the neighboring inhabitants.

Truly, a brick plant is "without honor" in "its own country."

For some reason the local builder is looked upon as a proper outlet for "off-shades" and "seconds." This is singularly unnecessary, since the local man has the advantage of buying direct, and so saving a broker's profit, and of saving the freight which builders in more distant cities pay without a murmur. And the home town of the brickmaker is, as a rule, the poorest advertisement for the brick plant that the brickmaker has.

Starting with the idea of cheap brick, the local builders use cheap bricklaying.

The brickmaker seldom, if ever, dictates or suggests the color, size or texture of the mortar joint. He contents himself with "working off" some odd lot that has been an eyesore for several months—or years.

Is it a wonder, therefore, that his "local advertising," lacking the influence of demonstration, often fails in effect? A well painted frame house is more inviting than a cheap looking brick dwelling. A good looking stucco house breeds business for the metal-lath and cement man, while the streaked and spotted brick house creates a doubt as to the truth of brickmakers' advertisements.

There is truth, but no reason, in the saying that "shoemakers' children are always unshod." And their barefootedness is a bad business principle. Children of other parentage may be convinced that shoes are unnecessary—or unornamental.

In that way, the shoe business might be rendered less profitable.

The brickmaker's home town is a parallel.

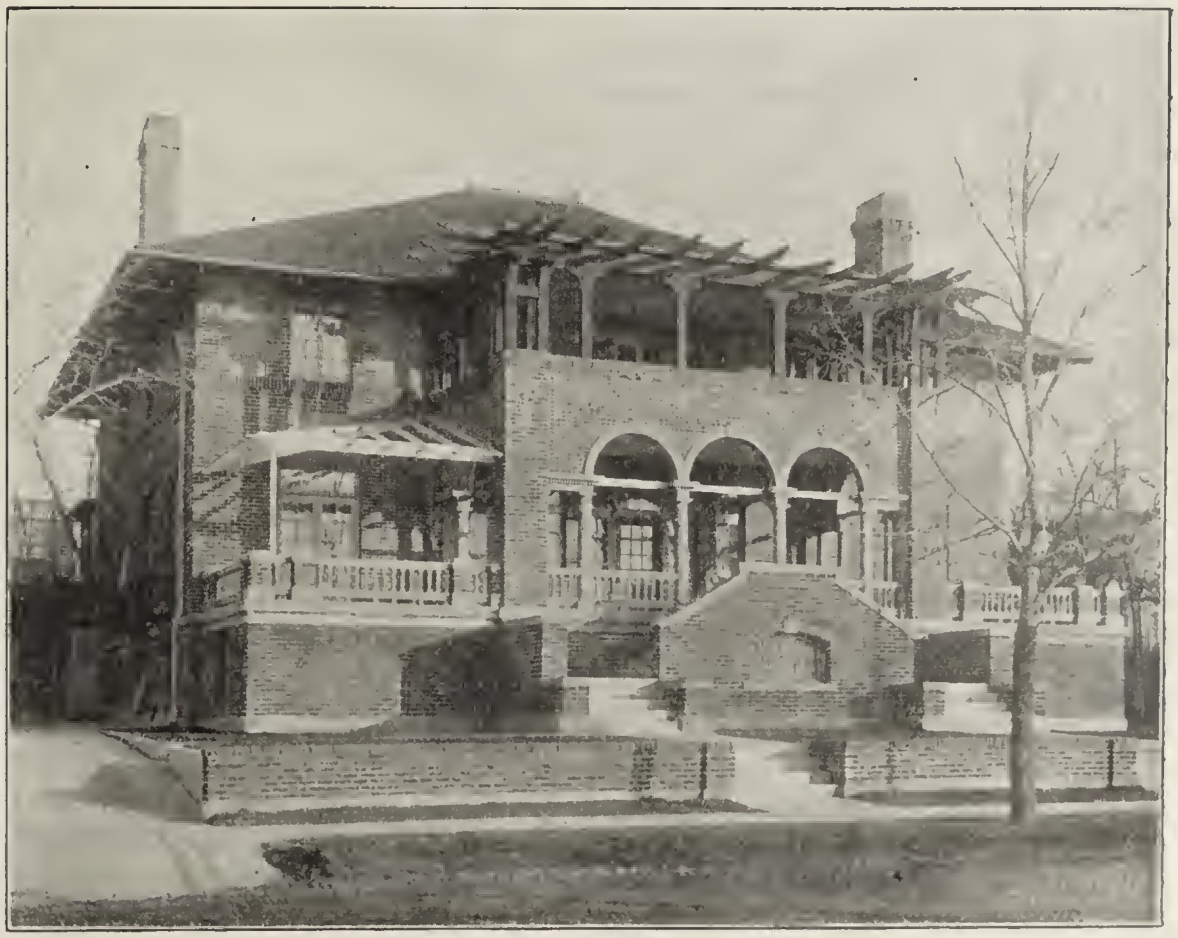
Its proper use of brick spreads to surrounding hamlets and these hamlets, in time, make neighboring towns. Poor brick work is epidemic.

On the other hand, were the brickmaker to use his natural advantages—his knowledge of good brick architecture, of mortar joints, of the proper blending of colors—and his influence—which is, as a rule, his personal acquaintance with the man who builds, he could make his local market a concentrated demonstration of the possibilities of his own product. With the cost margin he enjoys over lumber and cement, on account of the absence of carrying charges, he could make his town a city of brick in embryo.

And the excellence of the brick work which he fathered would have its influence, in turn, on surrounding towns. Good report travels with as winged feet as evil tidings. Villages become towns, towns cities, frequently within one man's life. The brickmaker is dictating the future of his craft.—"The Claycrafter."

A Brick Boat House

ARCADIAN brick, manufactured by the Poston Paving Brick Company, of Crawfordsville, Indiana, add to the beauty of the Athletic Boat Club house in Minneapolis, Minn. This brick is of the same texture and color as the Oriental brick, made by this concern, but is 2⅜ inches thick, while the Oriental is only 2 inches in thickness. The architects, Mansfield and Norstrom, of Minneapolis, consider this one of the best clubhouses they have ever designed, and it is unquestionably a building that will cause the clayworker to look twice. The brick are of a dark red shade, and the mortar joints half inch, rough gray. The brick were sold through the Bonner & Marshall Company of Chicago.



The Clay Tile Roof

An Evolution of the Thatch Roof, with the Advantage of Being Fireproof and Permanent

By Richard B. Hoehne

CLAY tile roofs are the rule, in Germany and other European countries, while in America, the reverse is the case. Granted that the roofing tile business is a growing one, it is not progressing nearly as fast as it should, considering superiority of the product for the use to which it is put. What is the trouble?

Richard B. Hoehne.

EVERY owner of a residence, and nearly every one used to living in a house, knows the vital importance of the roof to a building. An imperfect roof is not only a source of displeasure to the inhabitants, but is detrimental to the whole structure and will cause continual repairs to the roof itself as well as to the building. On some buildings nearly any style of roof will do, but these are not the kind I have reference to in this article; instead I will try to outline the requirements of a perfect roof, such as is needed where the protection of stored merchandise or feed, etc., is concerned, or where valuable machinery or automobiles are housed underneath it. My own experience is substantiated by what others say—that, next to the foundation, the roof is the most important part of a building.

REQUIREMENTS OF A ROOF.

In the first place, a roof should be durable and substantial, and should eliminate the necessity of painting and repairs due to the action of the weather. Secondly, it should be of light weight and yet present sufficient resistance to heavy wind. Third, it should be tight enough to give ample protection against rain and snow. Fourth, it should be made of fireproof material, which readily permits the architect and builder to arrange the roof surface in any desired style of ornamentation. Fifth, its initial cost should not prohibit its use on the average building. Last, not least, a roof should be constructed so as to insure

A PROPER VENTILATION.

The ventilation of a roof is a feature seldom regarded as being of any degree of importance, although its neglect is just as destructive to a building and its contents, as a roof that leaks badly. Naturally, the atmosphere within any building will differ from the air outside. Especially during the colder season we notice an atmosphere of higher temperature inside, which is bound to rise and elevate the moisture from within to the attics of the building. With proper ventilation the saturated air will follow the course of circulation through the roof and be transferred to the ouside, while otherwise condensation will occur on the lower surface of the roof, causing the sheathing, rafters and trusses to rot, or rust respectively, and subjecting the interior of the building to the drip of the condensed water.

Among the various methods of roofing used in the United States we find some pretty substantial; some giving a splendid protection against fire, rain and snow; others whose extreme lightness insures sufficient ventilation, though at the expense of durability, while still others conform to the requirements that enable the architect to design the roof in a desirable shape to match the style of the facade. The roofs commonly used on residences, with few ex-

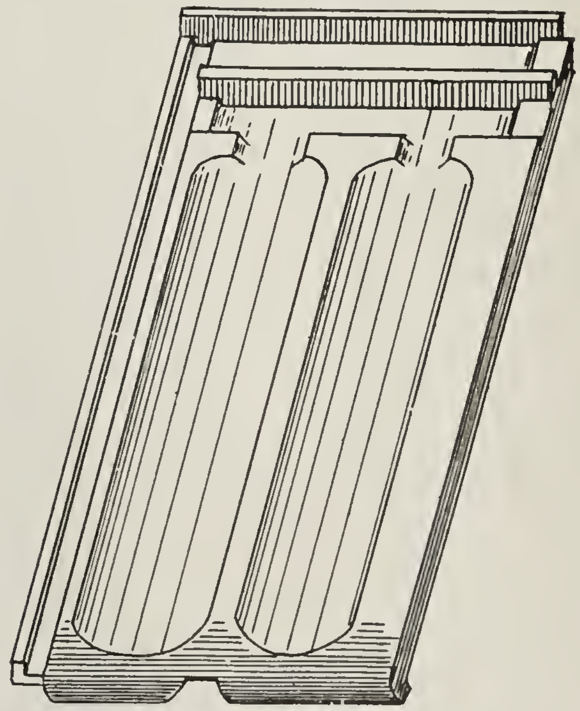
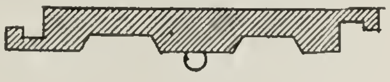


Fig. 1.

ceptions, lack any kind of ventilation. In consequence thereof, during the summer months the temperature immediately below the roof will rise to render the existence of human lives unpleasant, if not altogether impossible. Hence, ventilation is required at all times and should be arranged accordingly. Windows and other openings do not answer the purpose, for these are subject to regulation and are useful only when open, thus admitting rain, snow or dust at the same time.

INTERLOCKING TILE—THE MOST PERFECT ROOFING.

When interlocking roofing tile had been placed on the market about half a century ago, the people in Germany soon realized that this material filled a long felt want. The superiority of the new tile was so apparent that in a few decades it gained the rank of a universal roofing. Preceding this epoch, wooden shingles, slate, tar paper, straw and shingle tile were commonly used. None of these, however, answered all the requirements identifying a perfect roof.



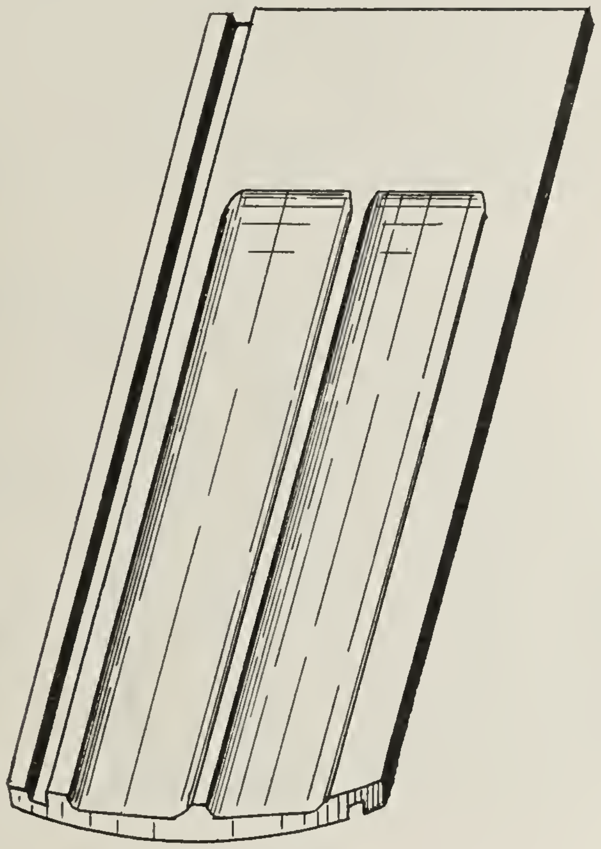


Fig. 2.

Straw roofs were popular, especially on agricultural buildings, and farmers pronounced them to be the only kind that would keep their stored feed, etc., absolutely dry and in perfect condition. This may be rather difficult to imagine; apparently the character of straw would render this product inferior to almost any other kind of roofing. Straw roofs, naturally, were of little account as a fire resistant, until in later years some inventive genius discovered certain means of impregnation by which the fire danger could be decreased. The feature mainly responsible for the popularity of straw roofs, was based upon the insulating power of straw. In making roofs this was taken advantage of by placing the straw—usually that of rye—in layers on wooden strips, or narrow boards in distances of about two feet and fastened crosswise to the rafters. The first layer of straw was placed nearest to the gutter, while every succeeding layer lapped over the top of its predecessor.

By this novel and inexpensive arrangement provision was made for circulation of air through the roof—but, how? It is a well known fact that stalks of vegetables are hollow, and so is that of rye. The stalks of the straw admit air lengthwise through their hollow centers. The large number of little passageways thus running from the lower surface of the roof, diagonally through its body to the outside, furnished all the ventilation necessary to avoid dampness within the building, and there was no sign of condensation, nor excessive heat on the inside surface of the roof.

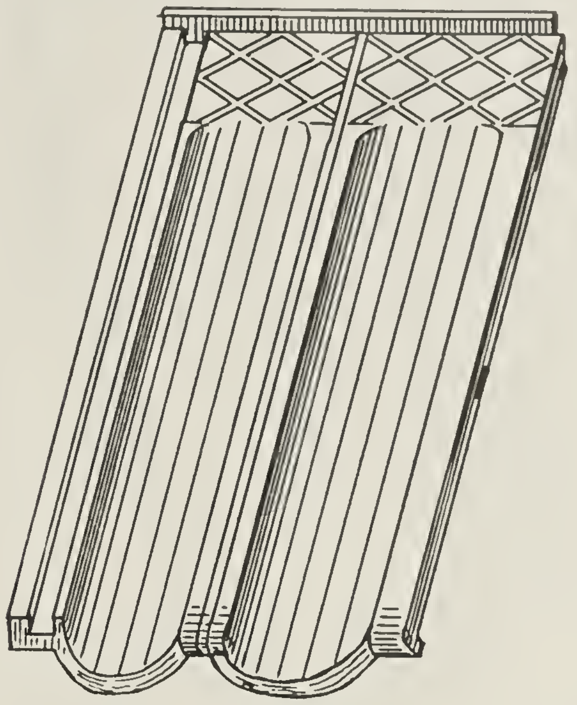


Fig. 3.

Interlocking roofing tile were designed to imitate this peculiar advantage of the straw roof. In the course of time the original pattern has developed into several different shapes. The illustrations in Figures 1, 2, 3, 4, and 5 show some of them.

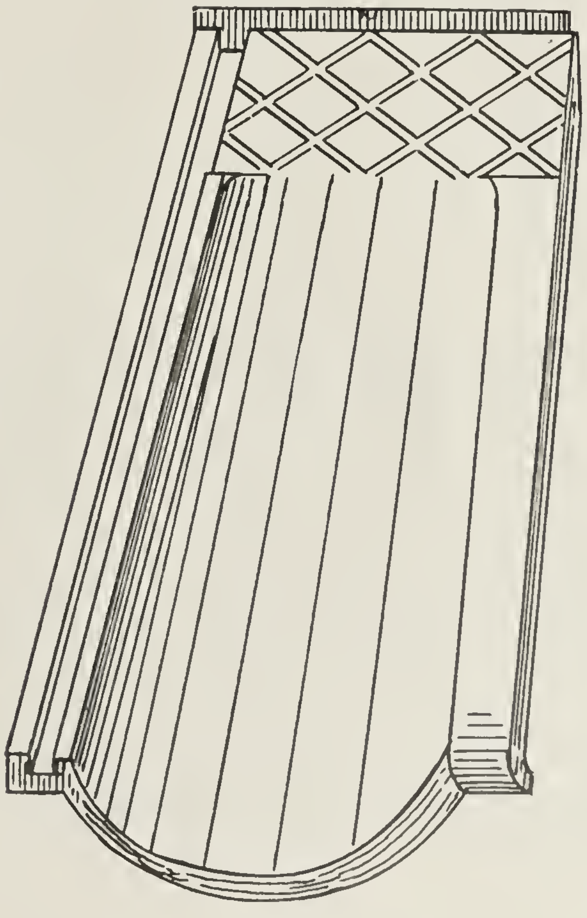


Fig. 4.

Fortunately, the clay industries have succeeded in producing a material that under any circumstances, if handled properly, will furnish a perfect roof. Aside from the excellent ornamentation obtainable with interlocking tile, this style of roofing is fireproof, requires no painting and under ordinary conditions will need no repairing for a few decades. Furthermore, the roof is lighter than most of its competitors. It furnishes an ample protection against rain and snow and also provides for circulation of air similarly to that of the famous straw roof. Like the hollow stalks of the straw, the side locks of interlocking tile form many little passage ways through which the air can circulate from the inside of the building to the outside, thus effecting the removal of saturated and undesirable air. For this reason, interlocking tile are most generally used in Germany; especially the farmers appreciate this advantage and there is no class of roofing material used more extensively on agricultural buildings than interlocking roofing tile.

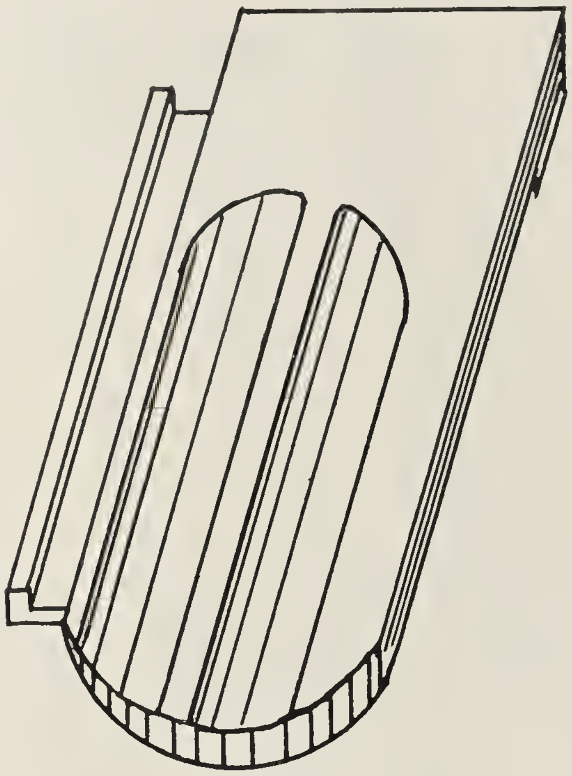


Fig. 5.

AMERICAN TILE ROOFING.

The use and manufacture of roofing tile in this country has not as yet grown out of a state of infancy. Some faulty methods adopted in laying the tile on the roof and mistakes in the manufacture itself seem to be responsible for the slow progress of this unexcelled style of roofing.

Contrarily to German practice, in this country tile are usually laid on solid sheathing. Very often roof makers go even so far as to place tar paper or rubber as a secondary roof underneath the tile. With this method the foremost advantage of an interlocking tile roof—namely, that of air circulation—is annihilated by the secondary roof. I presume it is simple enough to understand that no effective circulation of air can take place through a tar paper or rubber roof with solid sheathing underneath. The disadvantages of this impractical method also include an increase in the initial cost to such an extent that most builders cannot afford to use tile roofing at all, and moreover, for many purposes, the roof is rendered unsuitable by the lack of ventilation.

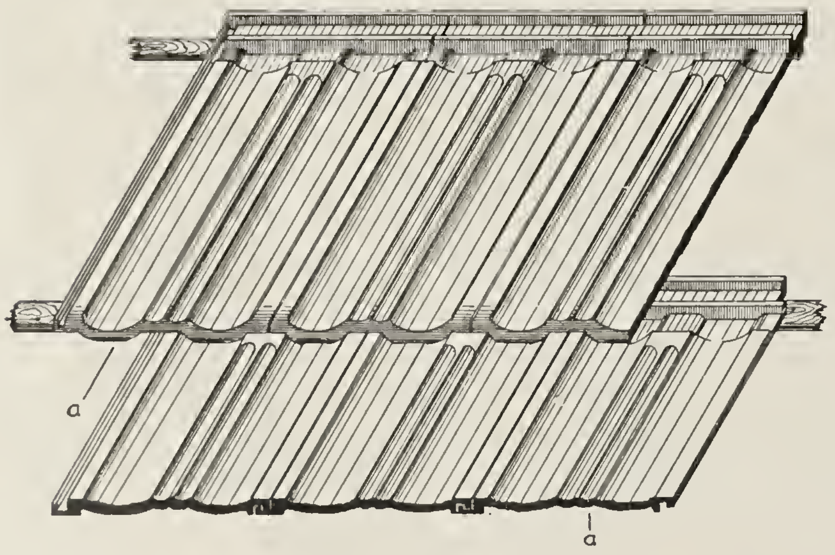


Fig. 6.

Another nuisance is presented by nailing interlocking tile to the sheathing. Although holes are provided for this purpose, many a tile incurs damage when the nails are driven, and the results often are the cause of early repairs. Because of the fact that the nailing is only possible at the extreme top end of the tile, this method is altogether insufficient, for it leaves the opposite end subject to the play of the wind.

In Germany, tile of the interlocking type are laid on narrow wooden strips placed about 12 inches centers. The Figures 6 and 7 are illustrations of the German way of roof-laying. It can be readily seen therefrom that nothing prevents the air from circulating through the roof. Wherever steel trusses are used instead of wooden rafters, the strips may be efficiently substituted by angles.

With very few exceptions, the method of nailing tile on the roof, has been abandoned in Germany. Another system of fastening the tile has been successfully used for a number of years. The Figures 8 and 9 show how the tile, by means of wires, are securely fastened to the strips. To this end, a nose (a) as indicated in Figures 8 and 9 is provided to take a copper wire, by which the tile are secured against wind. Such wire-anchors are necessary only now and then and may be conveniently drawn over the entire height of the roof. Every time a strip is crossed the wire should be looped to a tack (b) indicated in Figures 9 and 10, to guard against possible expansion. The adopted location of the nose (a) in the center of the tile insures a method of fastening by which both ends of the tile are held in position equally well.

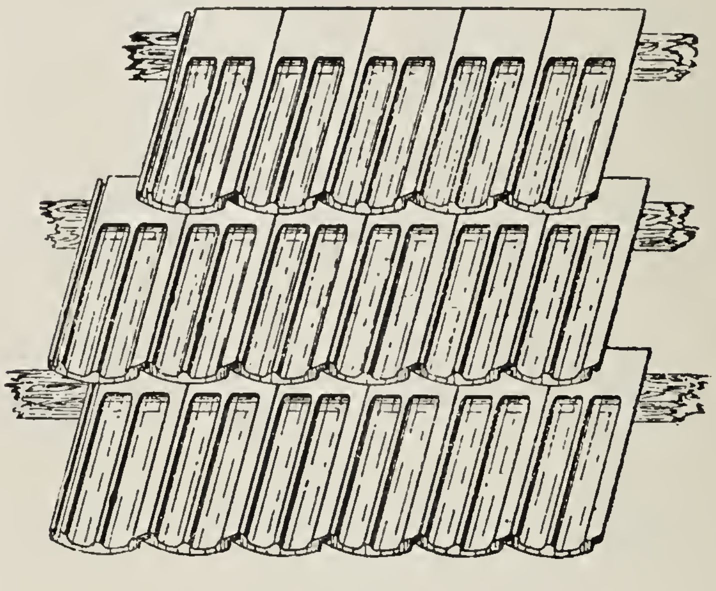
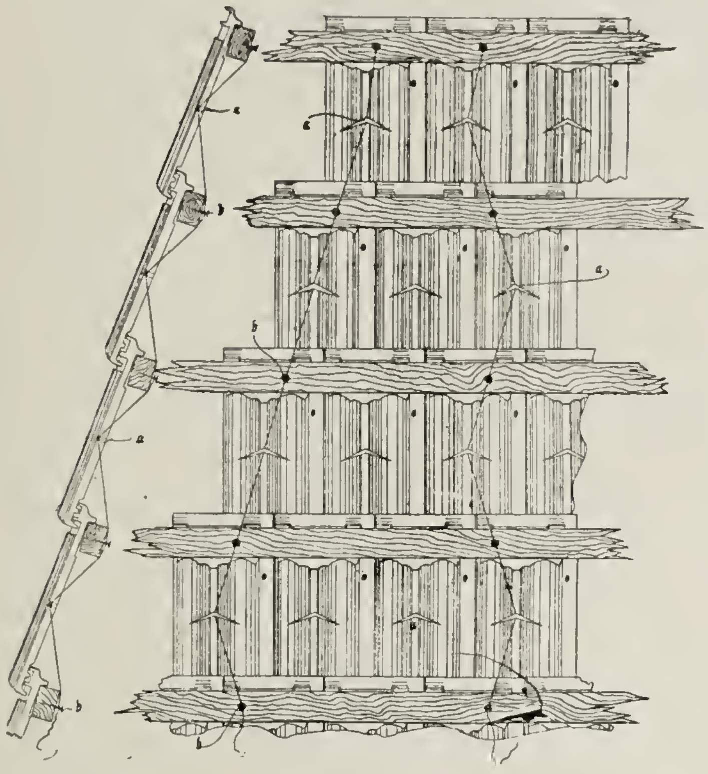


Fig. 7.

While in this country valleys are made of tin or galvanized sheet iron, in Germany this method has been altered as shown in Figures 10 and 11. These sketches illustrate valleys built up of tile that are especially manufactured for this purpose. Valleys lined in this manner resist the action of the weather more successfully and hence, give better satisfaction than those of metal.

The small number of American factories engaged in the manufacture of tile roofing are well pleased with the demand for their product. Evidently the American public is desirous of buying some style of roofing different from that used in past years. If the clay industries would enter upon this field more aggressively and place on the market a product embodying all the requirements of a perfect roof, the public would soon realize this, and a rapid expansion of the business would be noticeable.

Regardless of the fact that in Germany deposits of suitable clay are getting scarce, within the boundaries of that empire approximately 250,000,000 roofing tile—the majority interlocking—are manufactured annually. In America I have seen many deposits containing clay and shale in quality far exceeding that of the material used in Germany. An abundance of excellent raw material can be purchased at a small expense and, if used intelligently, can be made the source of high dividends.



Figs. 8 and 9.

Concluding my article I invite progressive clayworkers to explore the field mentioned; it is worth their while and will pay for the trouble.

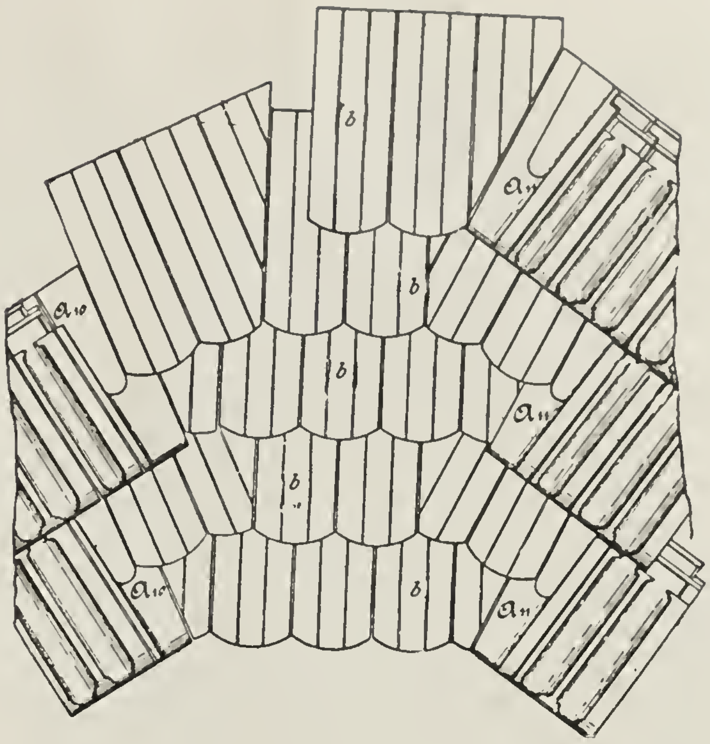


Fig. 10

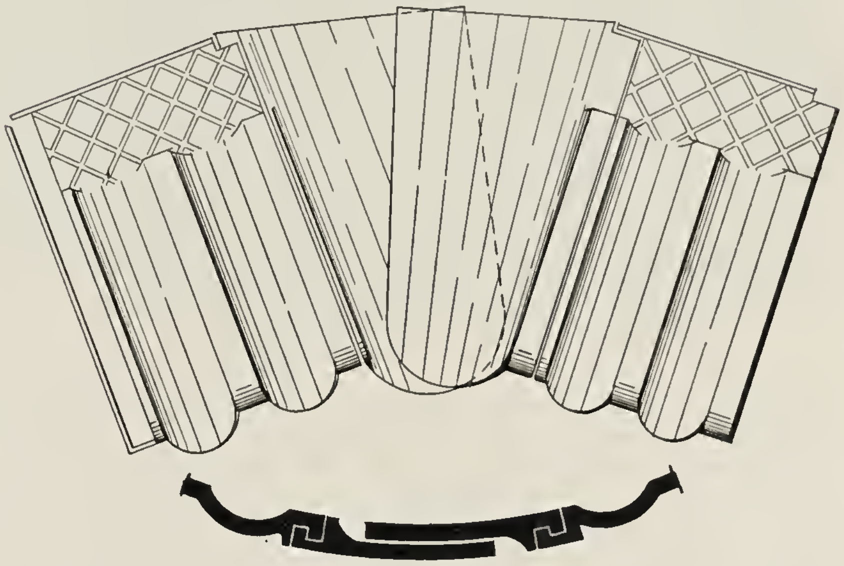


Fig. 11

Another Testimonial for Fernholtz.

An old Lion dry press is in active and satisfactory service at the plant of the Hillenbrand Brick Manufacturing Company on the Poplar Level road, near Louisville, Ky., one of the old plants of the Hydraulic Press Brick Company, after twenty-four years of almost constant use. It was supplied originally by the Lion Press Brick Machine Manufacturing Company, of St. Louis, though the machine is now being made by the Fernholtz Brick Machine Company, of St. Louis. The company expects to equip the old press with some of the recent improvements this Fall and continue its use. The mold was broken recently and the company used an old one while the new one was being cast. Incidentally the casting had to be shipped to St. Louis to be case-hardened.

By establishing its brick making operations on the "stint" basis, a certain brick manufacturing plant near Louisville, Ky., is assured of an output of 25,000 brick a day at a cost which is very satisfactory to the operators of the plant. The company works negroes altogether, and devised the plan to keep them going, so as to eliminate the need of a taskmaster. The rule is that the dozen or more men employed in this part of the plant are through for the day after the stipulated 25,000 brick are on the shelves of the dryer. The teamsters and the pit-diggers work regular hours, but the men who make the brick and handle them from the molding machine to the kilns are through ordinarily at 3:30 o'clock in the afternoon. Each negro, needless to say, is anxious to get his work done and to get away for the day as soon as he can, and any laborer who is not disposed to carry his full part of the load finds this plant an uncongenial place to work. This is another advantage of the system, it insures the employer getting the best class of workmen. Hour in and hour out the men sing as they work, keeping time to the music, as negro workmen frequently do. Here at this plant, though, the tempo is fast—no languid music for these men. It is surprising the amount of work they can turn out. The wheelers report on the job at 5:30 o'clock in the morning and set to work wheeling the dried brick from the dryer to the kilns, and by the time the machine is started there is plenty of space for the second shift to start spreading the wet brick. When the wheelers have finished their stint, that is, removed 25,000 brick from the dryer and stacked them in the kilns, they are through for the day.

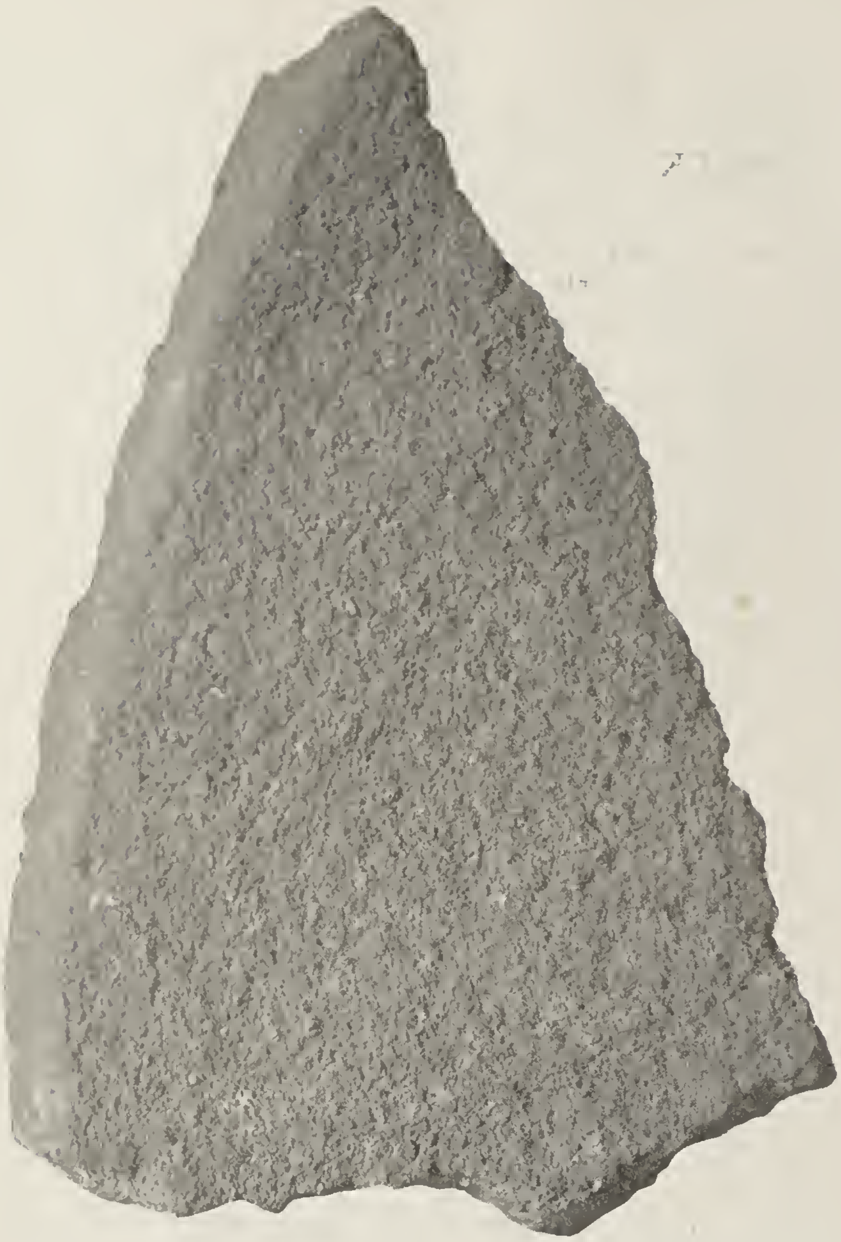
In This Issue—
"Brick and Clay Record" Announces a Clay Testing Station for the Benefit of those who Contemplate Starting Clayworking Enterprises. — See page 1365

Brick from the Ruins of Old Pompeii

Brickwork Finished Before the Christian Era Shows Craftsmanship Equal to that of Today

By John F. Doerr

IN presenting this article to its readers, "Brick and Clay Record" wishes to call attention to the fact that Mr. Doerr is a prominent Chicago architect, and that his comments upon the brickwork of Pompeii have the added weight of a combined theoretical and practical knowledge of masonry and of architecture.

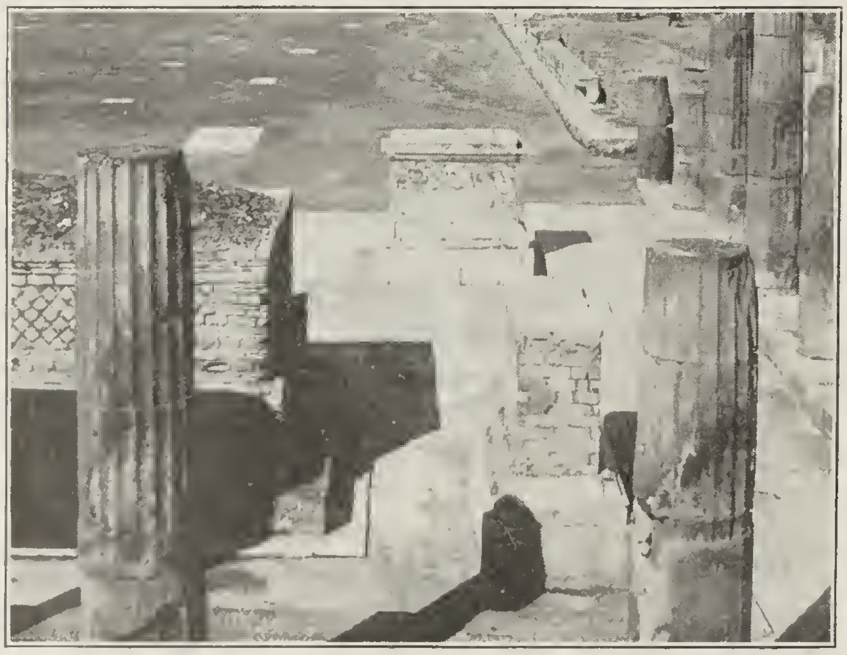


Fragment of Radius Brick taken from the Ruins of Pompeii. This Brick is Molded to a 14 inch Radius and Cut to a Quarter Segment. It is about One Inch Thick.

WHILE there is hardly any doubt but what this country can offer "natural scenery" surpassing in grandeur and variety anything offered in the same line by Europe, it has, owing to its comparatively short period of civilization, nothing to show when it comes to antiquities, and to satisfy our curiosity on this subject we have to visit the Old World.

In Germany along the valleys of the Mosel and the Rhine, one finds any number of castles built by the Romans at a period long before Christ. Of all the cities in this locality with buildings of an unmistakably Roman origin, Trier, Treves or Trevireusis takes first rank. There you find ruins of an amphitheater, an imperial palace, baths and two comparatively well perserved buildings, one the Porta Nigra and the other the so-called Basilika.

While the former is constructed of heavy sandstone blocks,



Copyright by Underwood and Underwood
Brick Piers with Marble Veneer in the Forum at Pompeii.

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Ruins of the House of Olconius, Pompeii.

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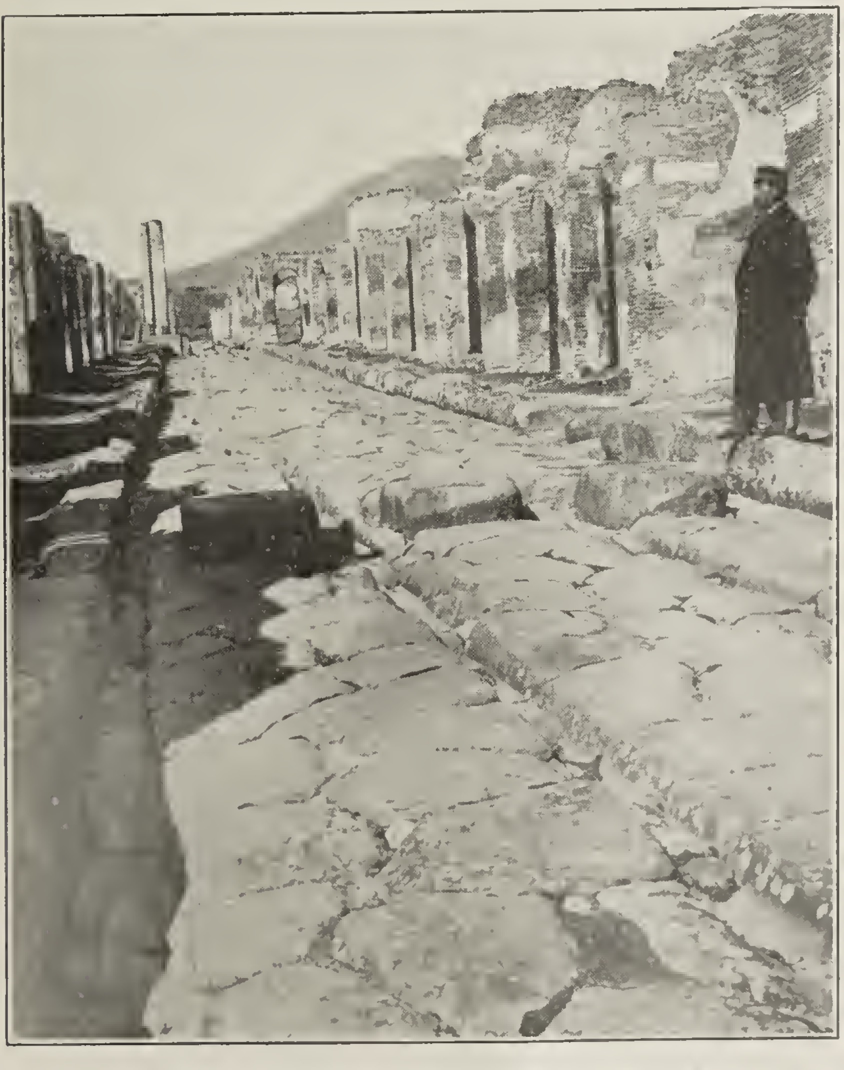
The Forum at Pompeii, with Vesuvius in the Background.

resembling very much our Bedford stone, the latter is built of a terra cotta colored Roman brick. The Porta Nigra is said to have been erected by Greek colonists around the year 200 B. C., but historians, who have gone deep into the subject, give the time of its erection to the period of 200 to 300 of our era. The Basilika, which is now used as a Protestant church, dates its origin back to the time of Constantine 274-337 A. D., and is in an exceptionally good condition.



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Old Wheel Tracks, Street of Stabia, Pompeii.

All these remarkable testimonials of early Roman achievement, however, look like infants when compared with the ruins laid bare by the excavations of Pompeii and Herculaneum.

Twenty years ago, I had the pleasure of visiting these ruins and I came away convinced that in the art of masonry and in the manufacture of common brick, the builders of these ancient cities produced a material which is not surpassed by our present day clayworkers.

Last winter, I visited Pompeii for the second time and found that since 1894 the excavations had been extended considerably; on this occasion I had the good fortune to obtain a fragment of a brick taken out of a round column, of which the accompanying cut shows the form. It was taken, if I remember right, from the Casa del Centenario near the Strada di Nola on January 29, 1914.

The column was about 14 inches in diameter and four or five of these brick formed one layer and had the joints broken every other layer. The outside of these columns were covered with a heavy layer of cement, some of which is still adhering to the brick, and, when you consider that it is fully 2,000 years since these columns were erected and over 1,800 years since their immersion under a bed of hot lava to a depth of from 12 to 15 feet, there remains no doubt but what this cement covering was put on to give the column an appearance of marble. I said that these buildings are at least 2,000 years old, but when one sees how the streets, paved with hard cobble stones, are worn out on the sides where the wagon wheels traveled, a few hundred years may safely be added without any fear of exaggeration or misstatement.

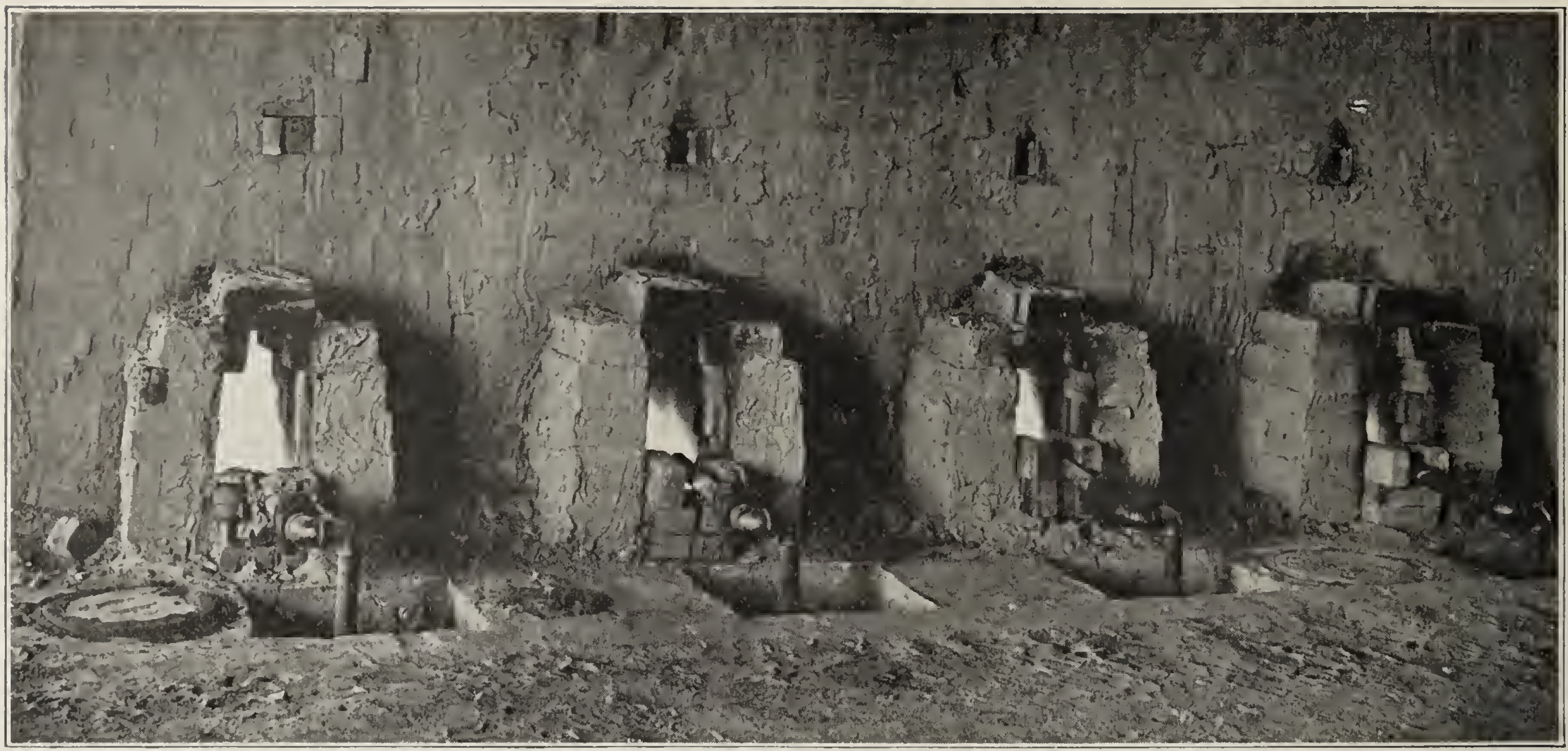


Fig. 1—The First Four Arches in the Scove Kiln at the Ajax Brick Company's Plant in Detroit, Mich. Here the application of the Underwood System of Burning with Producer Gas has Reduced the Watersmoking Period to 24 Hours and the Burning Period to 72 Hours.

Underwood System Scores Big Success

First Burn at Ajax Brick Company's Detroit Plant Demonstrates Every Prior Claim Made for New System, Warranted by Actual Performance

JUSTIFYING the confidence which has been reposed in it by its inventor, by the men who have staked their reputation on its wonder-working powers, and by the dozen or more plants which are investing their money in the installation of this system to their kilns, the Underwood System of Burning with Producer Gas has come through the practical test of burning commercially, with flying colors.

The results are given briefly, since the date of the first burn was very close to the publication day of this journal and the interval was too short for the preparation of a more extensive article. More details will be given in a subsequent issue. What did happen is described as fully as the time allows, and is of such moment to the clayworking industry, that "Brick and Clay Record's" readers are urged to read about it very carefully.

WORKING in a scove kiln, set forty feet wide and forty courses high, the Underwood system of Burning with Producer Gas finished water-smoking 24 hours after the first arch had been lighted, the fire meeting in the middle of this forty-foot arch in the time mentioned. This was one-third of the time taken by the best previous record made by any Detroit brick yard.

The first arch was lit at six o'clock, Tuesday night, June 9th. The photograph from which the illustration (Figure 1) was made, was taken at half past three o'clock, Thursday afternoon, the 11th. This arch was completed the following day, at six o'clock in the evening. This made 72 hours from the time the match was touched to the gas at the first firing hole.

The burn was made under real working conditions, in the new $150,000 plant of the Ajax Brick Company of Detroit, Mich. Owing to the green kiln foundation, the brick were set but forty courses high, which is, as is well known, a more difficult problem to handle than when set forty-eight courses high, the height that will be made when the kiln foundation has been once burned over.

When the arches are set the full height, even better results are expected, since the blanket of water-smoke can be retained longer and more brick can be burned with the same fuel, there being less radiation.

A burner from one of the other Detroit yards, who was an interested spectator made the remark: "That is the finest and fastest fire I ever saw in an arch—reminds me of the good old wood fire—only better."

Figure 2 shows the inventor, John T. Underwood, about to light the gas in a cold arch, and Figure 3 was taken thirty seconds later, showing the arch lighted. To demonstrate that this was not a piece of luck, the operation was repeated three times successfully, only one match being used for each of the four lightings.

One remarkable point in this connection was the fact that this lighting was done in a cold arch, although it has been said many times that this is an impossibility. Mr. Underwood's demonstration disrupts this theory.

The system used on the Ajax Brick Company's yard is what is known as a progressive burning system, and two

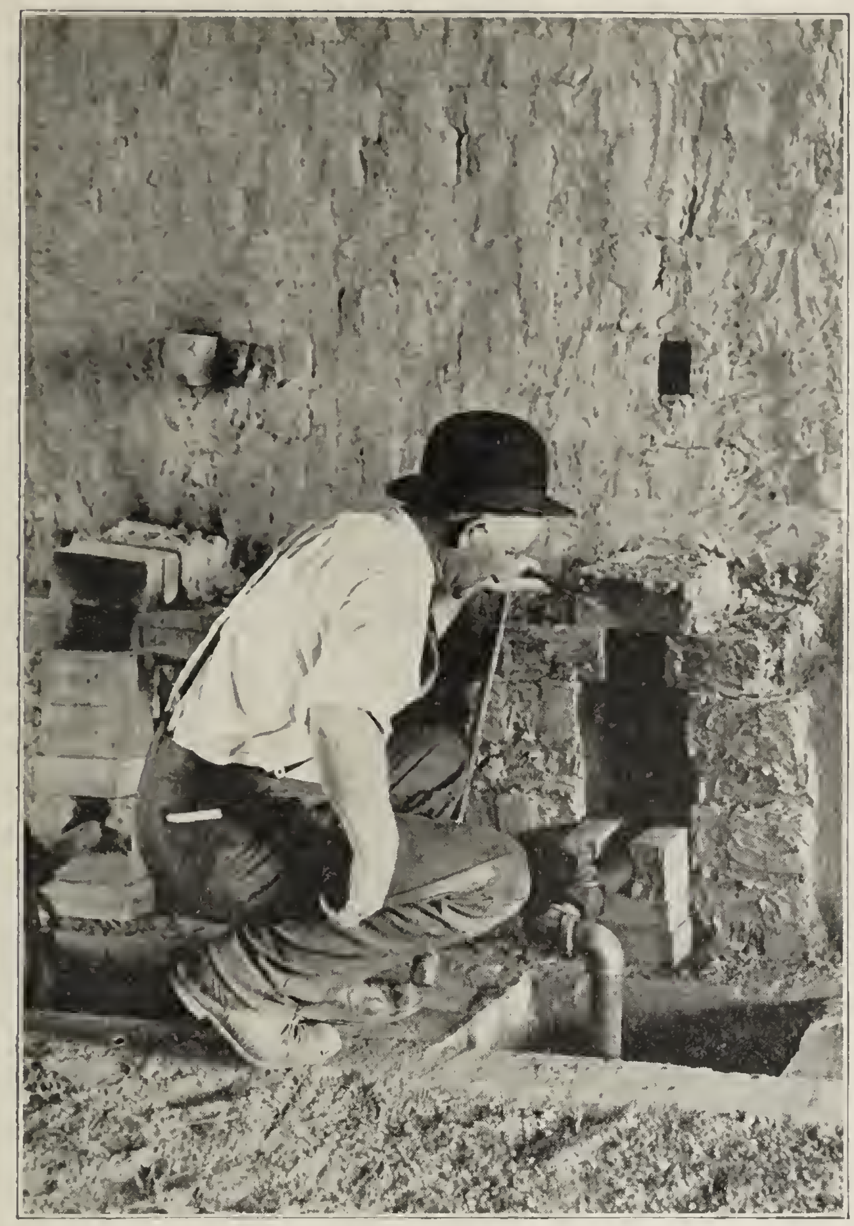


Fig. 2—John T. Underwood, the Inventor, About to Light the First Arch. This was Done Successfully, with a Common Match. The Arch was Cold When the Match was Applied.

arches are lighted every day. After ten arches have been lighted, two are to be closed each day, and two new ones lighted.

The gas producing equipment consists of two 15-ton water-sealed producers which will furnish sufficient gas for 150,000 brick made from Detroit clay. This will be the regular daily output of the Ajax Brick Company. These producers will gasify about 30 tons of coal per day when the plant is in full operation.

It is too early now to give any exact cost data. The fact that the setting will be higher and that the conditions were not as favorable at the first burn as they will be when the plant is in full operation, would make any figures unreliable at this time, although the amount of coal the producers consumed indicated a very low cost per thousand brick.

The fact of the short water-smoking and burning time, however, is a matter of record.

About 15 months ago, John T. Underwood, a brickmaker of many years' experience, announced to his associates that he had worked out a plan of successfully applying producer gas to any kind of a kiln, and through the influence of two Detriot capitalists the Underwood Engineering Company was formed and permission secured from the F. H. Wolf Brick Company to try it out on their yard, in an up-draft scove kiln—the hardest possible proposition. When announcement was made that this was to be done the eyes of the brickmaking world were turned in the direction of Detroit, and the result of the experiment was waited for with much interest.

It proved successful in that case with temporary equipment, and C. K. Davis, a Detroit capitalist, had such faith in it that he immediately organized the Ajax Brick Co., bought out the Schneider Brick Co. and started the erection of a 150,000 per day stiff-mud plant, which bids fair when completed to be the most modern common brick plant in existence.

It was planned to have the brickmaking equipment ready for operation when the burning system was ready, but since some delays were encountered in the construction of the plant, the mechanical end was not completed at the time, and, therefore, the brick being burned are made in the old soft-mud plant on the same yard, which will be dismantled when the new machinery is in place.

The members of the Manufacturers' Equipment Company, of Dayton, Ohio, composed of a group of hustling young men, well known in the industry, who had watched the experiment at the Wolf plant, were so enthusiastic over the results that they made an arrangement with the Underwood Engineering Company to market this system for them exclusively, and have meanwhile pinned their faith to the proposition selling more than a dozen of these systems throughout the country to be applied to all types of kilns, scove kilns and round and rectangular down-draft kilns.

That producer gas can be successfully applied to round and rectangular down-draft kilns seems beyond question from the fact that it has been successfully applied to up-draft scove kilns, admitted by every one to be the hardest test.

The immense investment called for on the part of the incorporators of the Ajax Brick Company, Detroit, showed their faith in the Underwood Burning System, and it will be largely as a result of this that the industry is given a departure in burning which bids fair to work a revolution in the manufacture of clay products.

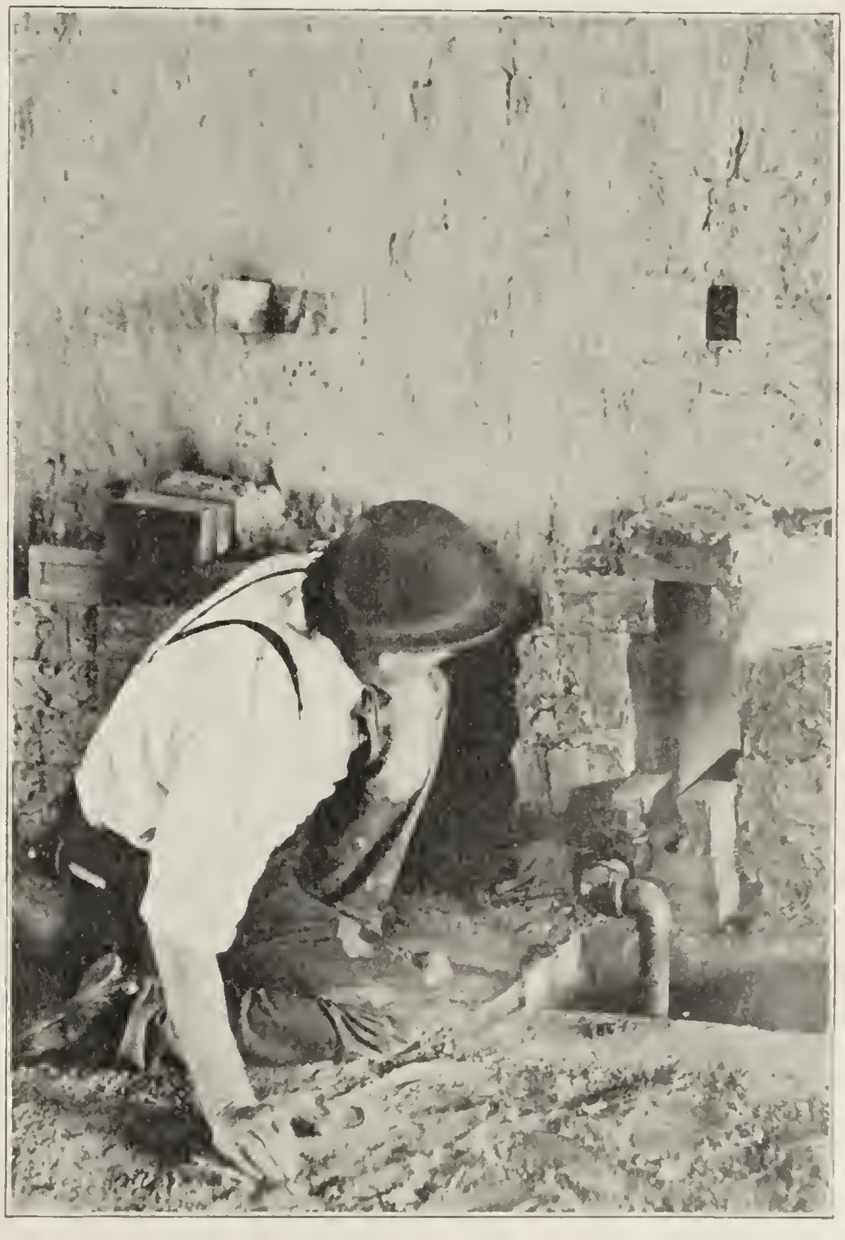


Fig. 3—Thirty Seconds Later. This Gas Was Ignited Four Times in Quick Succession and Turned Off at Once, to Show Ease of Ignition. In Each Instance a Common Match was Used and Was Effective at First Application.

Freight Tariffs and Troubles

A Department of Vital Importance to Every Manufacturer of and Dealer in Clay Products and Kindred Materials

Conducted by
Irwin W. Preetorius
Freight Tariff Counselor

MODERN machinery and modern ways of doing business are rapidly bringing costs to a point where there is little difference between one plant and another. Some natural advantage, such as a convenient shale bank, or cheap fuel or a short haul to a good market, may give some advantage, but in the general manufacturing items, there is a remarkable sameness.

This sameness extends to waste. A few plants have reduced the percentage of spoiled ware, of unused heat units, of idle labor. *Few, if any, have reduced the freight waste.*

What does that mean—"freight waste?" Simply charges that you are paying in connection with the transportation of material into and out of your yard—charges that you should not pay, or rather, not be called upon to pay in full.

These charges are represented by what are called "expense bills." They are the receipts that the railroad gives you for what you pay, for freight, for demurrage, for "switching charges' and what-not.

Sometimes, and in very rare instances, no "freight waste" exists. Where a plant receives practically nothing but coal, and ships all of its product "freight collect," it has little to worry over, at least on the surface. If added to this, it fights, every month or two, on the "car service" statement, it probably keeps its "freight waste" down to a minimum.

But it is almost inevitable, if it ships "freight prepaid" or if it guarantees a minimum rate to its consignees, that those "expense bills" are a perpetual evidence of a "freight waste" that is deplorable, not only on account of the direct money loss, but because of the lack of knowledge that this "freight loss" betrays,—the business lost to the plant on account of quotations made on wrong rates.

Since the inauguration of its "Freight Tariffs and Troubles" department, "Brick and Clay Record" has been given some insight into the enormity of this "freight waste." It has also found the simplest way of stopping that waste, and adding to the profits of a large proportion of its subscribers.

In these "expense bills" lies all the knowledge of the rates you have been paying. They "cut corners" and come right down to the question "Am I, or am I not, getting the lowest legal rate on my shipments?" They drop the theoretical, and get down to the practical—they are not the rates you may have to pay, they are the rates—the good, hard "cash money" you have paid.

"Brick and Clay Record" proposes to check those bills for you, to hunt through them for overcharges, to show you how to collect on those overcharges, and to stop them.

That looks very much like "plugging a leak."

It also looks a great deal like giving you a new gun, with which to shoot orders. While finding out where you have been overcharged, it will point out where a better rate exists. You use that rate in future quotations—and cut your price without cutting your profit.

It means an added expense to "Brick and Clay Record," but it is offered to subscribers as a free service.

To our knowledge, no specialized or trade journal has ever before made an offer so fraught with helpfulness, as this.

It is made because we feel that clayworkers have undeveloped gold mines on their plants that need but a little prospecting to be rich "pay dirt."

It is made because clayworkers have been notoriously careless of their rights and privileges as shippers, until they have come to be discriminated against, used badly, made to bear too great a proportion of the burden of transportation.

It is made because, with the exception of the traffic department of the American Face Brick Association, *no body of clayworkers has ever tried to act in unison on the question of an expense item that is greater than any other in the conduct of their business.*

And, with it comes a hope that enough will be found in the search after overcharges, to put clayworkers on guard, to make possible the formation of a Brick and Clay Traffic Club, in which the trade at large could share the benefit and the expense of a perfectly planned, well executed and successful campaign for a better classification, a fairer rate and a more favorable treatment of clay products than is given them at the present time by the carriers of America.

In a Brick and Clay Traffic Club, such as this, for a nominal expense, every clayworker in the country could be assured that his rate was the lowest legal rate to any point to which he wanted shipments made.

It would assure the clayworker whose plant is so small as to seem unimportant to the carrier, all of the power that comes from association with hundreds of other shippers over the same lines.

The unjust discrimination against any one shipper, in rates, in charges, in car supply or any other cause of loss and annoyance would be taken up and adjusted by men trained to the work, and working in the interest of the small clayworker, because he was a brother-in-clay.

"Brick and Clay Record" wants to prove that a Brick and Clay Traffic Club is a necessity. The proof lies in the freight bills that now lie in your office safe, evidences of money paid out, and gone.

If in its investigation, it proves to you that you have the right to file claims for overcharges, and so puts money in your pocket, you surely, will not be offended.

Pittsburgh Terminal Contention Reopened

Railroads entering Pittsburgh have made a proposition relative to switching charges which, it has been claimed, were excessive. In this contention, shippers of face brick in the Pittsburgh, (Pa.) district were particularly concerned. The terminal rate case was brought about through the protest of brick men and others against the alleged excessive charges made by the railroads for switching a car of freight from a point on the terminal road of one line to the terminal of another line. In many cases this switching charge was as much for a two-mile haul as for a 200-mile shipment over a main line. A petition to the Interstate Commerce Commission brought about the proposition forwarded by the railroads, and which is as follows:

Joint through rates between railroads are to be established to or from Pittsburgh terminals on the plus basis, as follows:

First class, five cents per 100 lbs.; second class, five cents per 100 lbs.; third class, two cents per 100 lbs.; fourth class, two cents per 100 lbs.; fifth class, one and one-half cents per 100 lbs.; sixth class, one and one-half cents per 100 lbs. Note 1.—Excepting that the plus basis to or from the junction point of interchange will in all cases be held as a minimum charge. Note 2.—The rates so constructed are in all cases to apply only via junction points outside the defined Pittsburgh switching limits. Note 3.—When joint commodity rates are established the class rate differences will be the basis of construction. Note 4.—Any rate in effect at present will be subject to such change as may be found necessary to make a consistent adjustment.

No formal reply has been made as yet by the shippers to the proposal from the railroads, but the general feeling is that the carriers have evaded the principal contention of the shippers and receivers. By making the rates apply at the junction points outside Pittsburgh switching limits, it takes away the very thing the shippers have asked for, according to one local brick manufacturer. It enables every railroad to get a certain percentage of the long haul of the freight and by using this method will in some instances actually increase existing rates from a point on one line to another railroad's terminal.

Changes in Freight Rates

From Eastern Points.

From Beech Creek, Orviston, Krebs, Lock Haven, Woodland, Irvona, Clearfield, Clymer, Pa., and other Pennsylvania points, brick and clay products, to Elnora, Mechanicsville, Scotia and Ushers, N. Y., $2.30 per net ton.

From Bradford, Johnsonburgh and ewis Run, Pa., brick, building and paving, and tile, hollow building, to Hammondsport and Rheims, N. Y., $1.65 per net ton.

From Bridgeton, N. J., common brick, to Bridesburg, Frankford, Kensington, Shackamaxon, North Philadelphia, Washington Avenue, Wharf, Point Breeze, Smith's Brewery, Water Works Siding, Fifty-Second Street, Gray's Ferry, Paschall and Angora, all in Philadelphia, Pa., 80c per net ton.

From Chester, Pa, brick bats, to Jersey City, N. J., $1.35 per net ton.

From Chester, Pa., brick bats, to Sayreville, N. J., $1.35 per net ton.

From Clymer, Lumber, Mahaffey and Patton, Pa., brick and clay products, to East Schaghticoke, Melrose, West Valley Falls and Valley Falls, N. Y., $2.70 per net ton.

From Eddystone, Pa., brick and articles taking same rates, to Brooklyn, N. Y., $1.95; to Jersey City, Constable Hook, Irvington and Newark, N. J., $1.35 per net ton; to Hazelton, Pa., $1.95 per net ton; to New York, N. Y., $1.95 per net ton; to Perth Amboy and Bayonne (22nd Street), N. J., and Easton, Pa., $1.60 per net ton.

From Kaulmont and St. Marys, Pa., clay products, to Erie, Pa., $1.25 per net ton.

From North Boston, N. Y., brick, building blocks, fire proofing conduits and articles taking same rates, to Niagara Falls, North Tonawanda and Suspension Bridge, N. Y., 70c per net ton.

From Solvay, N. Y., broken brick, to Rome, N. Y., 60c per net ton.

From Thompson, Del., common clay, to Lambertville, N. J., $1.35 per net ton; and to Flemington, N. J., $1.45 per net ton.

From Winslow Junction, N. J., common brick, to Elizabeth and Williamstown, Pa., $1.85 per net ton.

From Middle West Points.

From Chicago, Ill., and rate points, brick (except bath and enameled) clay conduits, creosoted paving blocks, hollow building tile and fire clay tile, and articles taking same rates, to Aberdeen and Huron, S. D., 17¾c per cwt.

From Elkhart, Ind., common clay, to Akron, Ohio, $1.50 per net ton.

From Evansville, Ind., brick and articles taking same rates, to Allendale, Ill., 70c per net ton.

From Hobart, Ind., brick and articles taking same rates, to Oak Forest, Ill., 65c per net ton.

From Menominee Tramway, Wis., brick, to Bessemer, Mich., 10c per cwt., and Fairmount, N. D., 10½c per cwt.

From Western Points.

From Aberdeen and Huron, S. D., brick, (except bath and enameled), clay conduits, creosoted paving blocks, hollow building tile and fire clay tile and articles taking same rates, to Chicago, Ill., and Burlington, Ia., 17¾c per cwt.

From Altoona, Caney, Coffeyville, Independence and Sycamore, Kan., and other Kansas points, brick (except bath, fire or enameled fire clay, tank or furnace blocks), including hollow building tile, to Oklahoma City, Okla., 7c per cwt.; to Enid, Okla., 8 c per cwt.; and to Lawton, Okla., 9c per cwt.

From Burlington, Ia., and rate points, brick (except bath and enameled), clay conduits, creosoted paving blocks, hollow building tile and fire clay tile and articles taking same rates, to Aberdeen and Huron, S. D., 17¾c per cwt.

From Caney, Carlyle, Chanute, Cherryvale, Coffeyville, Elk City, Fredonia, Girard, Humbolt, Independence, Iola, Peru and Pittsburg, Kan., brick and drain tile, to Lone Grove, Wilson and Ringling, Okla., 12c per cwt.

From Caney, Carlyle, Chanute, Cherryvale, Coffeyville, Elk City, Fredonia, Girard, Humbolt, Independence, Iola, Peru and Pittsburg, Kan., brick (exclusive of fire brick, fire clay, tank or furnace blocks and bath and enameled brick, hollow building tile) to Lone Grove, Wilson, and Ringling, Okla., 11c per cwt.

From Coffeyville, Kan., brick, (except bath, fire or enameled fire clay, tank or furnace blocks), including hollow building tile, to Enid and Lawton, Okla., 8c per cwt; and to Sulpher, Okla., 9¼c per cwt.

From Fulton, Mexico and Vandalia, Mo., brick, drain tile and articles taking same rates, (applies only upon fire brick and fire clay tank or furnace tile or blocks and fire clay flattening blocks), to Duluth, Minn., 12½c per cwt.

From Oskaloosa, Mo., and intermediate points, brick, except bath, enameled, fire and paving brick, to Texarkana, Ark.,-Tex., 8c per cwt.

From Southern Points.

From Blackburn and Van Wyck, S. C., common brick, to Rockingham, $1.70 per 1000; to Monroe, $1.10 per 1000; to Stout, $1.30 per 1000; to Lawndale Junction, $2.00 per 1000, and to Ellenboro, N. C., $2.20 per 1000. (Also rates to other North Carolina points.)

From Fort Runyon and Waterloo, Va., brick, common or pressed, to Bath Beach, Bedford and Bushwick, $2.30 per net ton; to Coney Island, $2.40 per net ton; to East New York, $3.40 per net ton; to 40th Street, Gravesend, Greenwood, Kensington, 39th Street and Third Avenue, $2.30 pet net ton, all of the above points being in Brooklyn, N. Y.

Clay Storage

Without it, Output is Seldom Capacity. Too Little Attention is Given to the Necessity of a Good Stock of Clay.

By H. P. Robbins

Advertising Manager of the Weller Manufacturing Company

NO department in clayworking plants has been so generally and consistently neglected as the storage of both raw and ground clay. While it is true that in some of the more recently built plants, the question of a sufficient storage has been well considered, it is also a fact that in the large majority of clayworking plants, very little thought has been given to this important feature.

One explanation of this is found in the fact that most clayworking plants have been designed by engineers in the employ of manufacturers of brickmaking and clayworking machinery, burning systems or dryers. That these engineers have been conscientious must be admitted, but when a limited capital has been made to spread over an entire equipment, the engineer had a natural leaning toward the class of machinery, or the system that paid him his salary.

Forced by conditions over which he had no control, and governed by the immediate necessity of producing a large output at a low cost, he let the clay come to his machinery as it would—generally with the crudest system that looked at all effective—and comforted himself and the clayworker with the statement "You give me the clay and I'll make the brick."

Conditions arise at short intervals in every clayworking plant, where a full supply of clay is not available. The clay supply is irregular because the machinery for its production is not up to the same standard of efficiency as the rest of the plant. This is the fault of the designer, and a serious fault, since failure in the clay supply means idle machines, idle kilns and reduced output. Failure in the clay supply stops everything but the overhead—and works an increase in that.

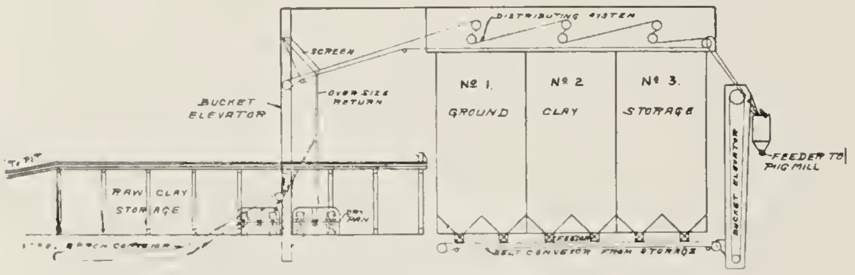


Fig. 1. A Simple Arrangement for Clay Storage.

The strong competition that exists in every line of industry makes the adoption of modern methods necessary to success. The plant that is not operated to capacity is not operated to its full earning power, hence is not operated economically.

Capacity is not rated, if rated properly, by the amount of brick or tile or other clayware that the machinery can grind out in a day, a week or a month. Capacity is not the amount of ware the dryers can dry if pushed to the uttermost margin of safety, nor is it the total tonnage that the kilns will burn in a given period.

A more correct definition is—the amount of ware that the plant can produce under the most favorable conditions, without overtime, without crowding, without "speeding up" to the detriment of the product.

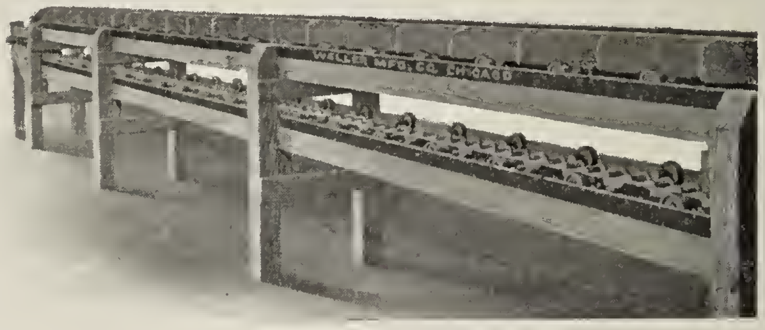


Fig. 2. Troughing Apron Conveyor with Steel Roller Chain.

"The plant" begins at the clay bank, or pit, or mine. It ends at the loading platform. The clay supply governs the capacity of every machine, every department of the plant. If it is dependable, if it produces, day after day,

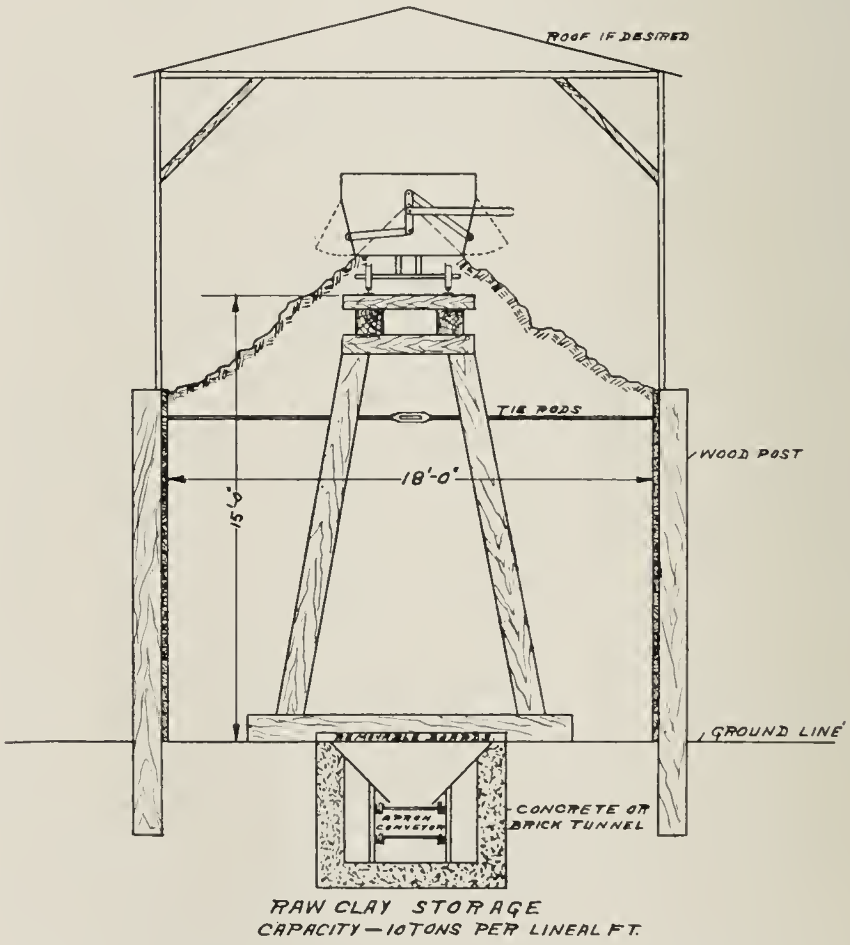


Fig. 3. Cross Section of Storage Shed, Showing Position of Dump Car and Conveyor.

enough clay to keep the machinery, the dryer and the kilns at their capacity, it is working economically—that is, helping to make the largest possible margin of profit.

Good business practice certainly would not countenance the starting up of a brick plant without some arrangement to take care of financial demands, either with cash on hand or with a line of credit to draw on when needed.

If such arrangement is not made the time will come when the manufacturer will suddenly need some extra capital and find this lack of foresight a serious handicap.

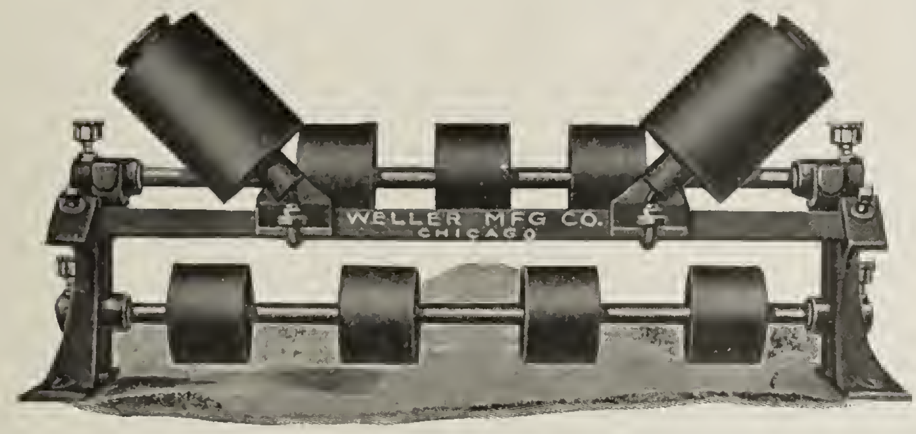


Fig. 4. Rollers for Carrying and Return Belts.

The identical principle is applicable to the manufacturing end of the business. Few, if any, brick manufacturers think of installing an equipment with a maximum capacity of their daily output. The brick machinery is usually capable of turning out from 25% to 100% more than the rated capacity and usually some leeway is provided in the dryers. In the kiln equipment, one kiln is usually figured to be down for repairs most of the time.

Why then should the supply of raw material be so poorly provided for? It is true that there is usually an abundant supply in the pit or mine. It is also true that frequently weather conditions will interfere with the work of getting same to the mill, there will be track trouble, motive power trouble and a number of other small but counting delays either in getting out the material or passing same through the grinder.

There is no question but that these delays must, in the end, cause a reduction in the output of the plant and the only and logical way to avoid this feature of reduced production is to provide suitable and adequate storage of both raw and ground clay and so put the capacity of the plant directly up to the capacity of the equipment.

It is true that the need of such storage has been apparent and has evoked considerable discussion, but usually the question of a reasonable storage with the cost of putting in and taking out therefrom has been regarded as an unnecessary expense.

The same might be said to apply to handling of grain or coal into and out of storage but with modern equipments, grain storage of from 2,000,000 to 5,000,000 bushels are frequent and coal is stacked up into piles containing more numbers of tons than the bushels of wheat and both articles are put in and taken out of storage with practically no hand handling and at a minimum of expense.

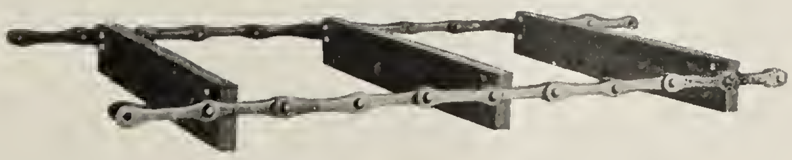


Fig. 5. Drag Conveyor Using Ice Chain and Wooden Flights.

The conditions in the clay manufacturing business generally may be compared to the policy in the large stamp mills in the West where, in the early days of this industry, small bins were placed above the machine to hold from ten to fifteen minutes' supply of material. Today, in the most modern plants of this kind, it is not at all uncommon to have a storage above each machine of from 48 to 60 hours' run and some even larger.

Clay can be handled just as economically as other materials and, with the increased advantages of modern arrangement, the equipment has come to be a necessity rather than a luxury.

There are many types of storage systems which can be devised according to the individual requirements of the particular plant and Figure 1 shows one of the simplest of these arrangements.

The material comes in from the pit in regular dump cars and can be discharged either directly into the dry pan or may be discharged into the storage on either side of the trestle and then reclaimed very cheaply and easily by means of the pan conveyor illustrated in Figure 2, running underneath the storage pile, which, in turn delivers to the dry pan.

Figure 3 is a cross section illustrating the large and convenient storage obtainable by this method. It also shows how the material may be dumped on either or both sides, and readily reclaimed by the centrally located conveyor running beneath the mud-sills of the trestle.

This type of storage for the raw clay is neither expensive to build or operate. While the retaining walls shown in the sketch are made up of planks held in place by posts sunk in the ground and supported by the rods, a still better method would be to build these walls, as well as the tunnel, out of culls or bats.

As for cost of operation, it will be seen that one man can send enough clay to the pans to keep two of them up to the limit. Another feature of this storage is the ability to dump the cars without delay at one place or another, and so get them back for refilling without the loss of time occasioned by waiting until the dump is clear.

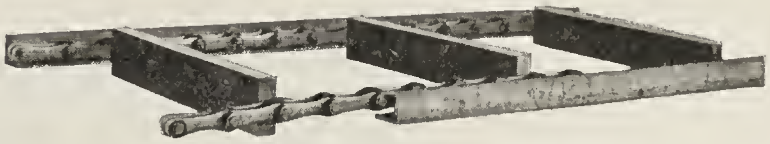


Fig. 6. Drag Conveyor with Roller Chain and Angle Iron Guides.

The steel pans can be lined with oak boards so that large chunks of clay or shale can be rolled or dropped onto the conveyor without injury to same. However, it should be borne in mind, that a good solid equipment is used and not a light makeshift arrangement, as in an equipment of this kind the best is seldom the cheapest in first cost.

By having the wheels of the rollers properly arranged, no attention need be paid to the lubrication oftener than once every three or four months.

On account of slow movement and rolling contact there is a very small amount of wear and the horsepower required to operate is extremely low.

Of course, there are several other types of conveyors which will handle the raw clay in an eminently satisfactory manner under certain conditions, such as the belt conveyor, the plain drag conveyor consisting simply of two strands of chain with a bar of wood fitted across at suitable intervals or the overlapping pan conveyor.

The belt conveyor shown in Figure 4 is an ideal equipment for transporting material, but ordinarily, care must be taken in loading the same on to the belt. While in some instances this makes no difference, there is, in some cases, considerable danger both to the belt and the rollers. Unless the pieces are comparatively small, or so weathered that the sharp corners are eliminated, it is usually advisable to use one of the other types of conveyor, or to install some type of feeding apparatus to regularly and properly feed the material on to the belt.

The plain drag type of conveyor, illustrated in Figure 5, appeals strongly, because it is so simple that repairs can be made quickly and cheaply. The chain may be of the plain detachable type, or what is familiarly known as "ice-chain" or one of the more expensive, roller types, shown in Figure 6. The flights or drags are pieces of timber bolted to the attachment links and can be made at any plant. Attaching them is a matter of a few minutes' work. A steel flight, however, has many advantages and costs very little. The principal argument against this type of conveyor is the wearing of the trough.

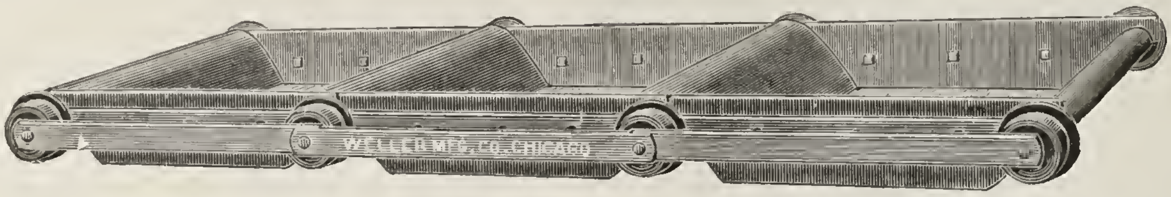


Fig. 7. Overlapping Pan Type that Has Some Excellent Points.

For large capacities, the overlapping pan of the type shown in Figure 7 has some very desirable features and this conveyor can also be used for elevating the material to a considerable extent. The discharge of the material from this type is also a very good feature, and, having sideboards to properly guide the material into the buckets, this outfit will have points of superiority over any other type of conveyor.

After passing through the dry pans, the ground clay is immediately elevated and screened. The rejections are returned directly to the mullers, the spouts being arranged so the rejections can be diverted to either pan.

The material passing through the screen drops into a hopper and feeds directly onto a belt conveyor, being carried onward and discharged into the storage bins as shown in Figure 8. This may be accomplished either by means of a movable or fixed tripper.

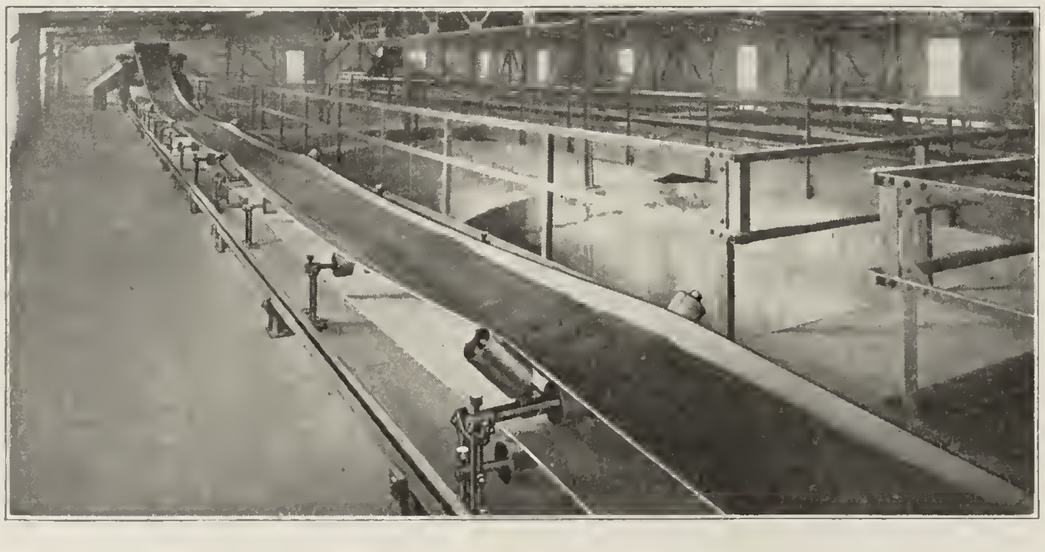


Fig. 8. Distributing Material to Ground Storage Tanks.

This belt is arranged to discharge the material into any desired bin or directly into the small hopper above the pug mill feeder without going into the storage bins.

For permanent installations the cheapest and best storage will be found in this industry to be the same as in other lines, i.e., round storage tanks. The use of square or rectangular bins is expensive in first cost and has no particular redeeming feature. Of course, these bins are simple the result of old practice, dating from the use of wooden bins which were of necessity built in a square cornered fashion. To take care of the stains developed, requires considerable heavy and expensive bracing, whereas, in the round type of storage, all of the strain is evenly divided the same as is the case in stand pipes and grain or seed tanks.

Underneath these bins is located the reclaiming conveyor. Two openings in the bottom of each tank fitted with feeding apparatus automatically delivers to the belt a certain amount of material as required.

Where it is desired to mix several materials this arrangement works to very good advantage as the desired proportions may be fed onto the same belt, which, in turn, delivers to the bucket elevator and the materials discharged into the small bin over the hopper of the pug mills or wet fans.

By having this hopper fitted with an agitator, the different materials can be thoroughly mixed, without hand labor, before passing to the brick making machinery.

It will be noted that this article was intended to deal with the handling and storing of raw and ground clays or shales, and, such being the case, it is now up to the brick machine man to handle the material onward, but the problem of having that large and readily available supply of raw and ground material always ready, is one that few clay working plants can afford to overlook.

While the advantage of having an adequate storage system is of prime importance, there is another distinct advantage to be gained in addition to those that have been enumerated. This is in the "weathering" given the clay by any good storage system.

There is no question but that clay is improved by "weathering." Some clays require more than others, but practically every clay is benefited by even one or two days' exposure to weather, while a week will work wonders. The improvement is seen in the drying and burning, and principally in the finished ware. Here a larger percentage of perfect ware invariably follows the use of a clay that has been "weathered" as compared to clay that is used immediately after it comes from the bank or mine.

The action of the atmosphere upon clay is invariably beneficial, the chemical elements that tend to injure the brilliancy of the ware, or to fill it with checks, being very much more susceptible to the action of air than those constituents that form the perfect finished product. Weathering seems to "bring the clay in" to a more uniform quality, and this makes for a more uniform product.

Just keep a record for six months and find out how much is lost because of the lack of the features advocated and then make up your mind whether you will be in the lead or back with the bunch that follow.

The Superintendent

A Department Conducted for the Interchange of Ideas in Methods of Manufacture

A special prize of $5 is offered in each issue of "Brick and Clay Record"—every two weeks, for the best practical suggestion printed in this department. This is in addition to the $1 paid for every idea published. Sketches are not essential to win a prize, but when they are necessary increase the value of the suggestion. Have you a better idea?

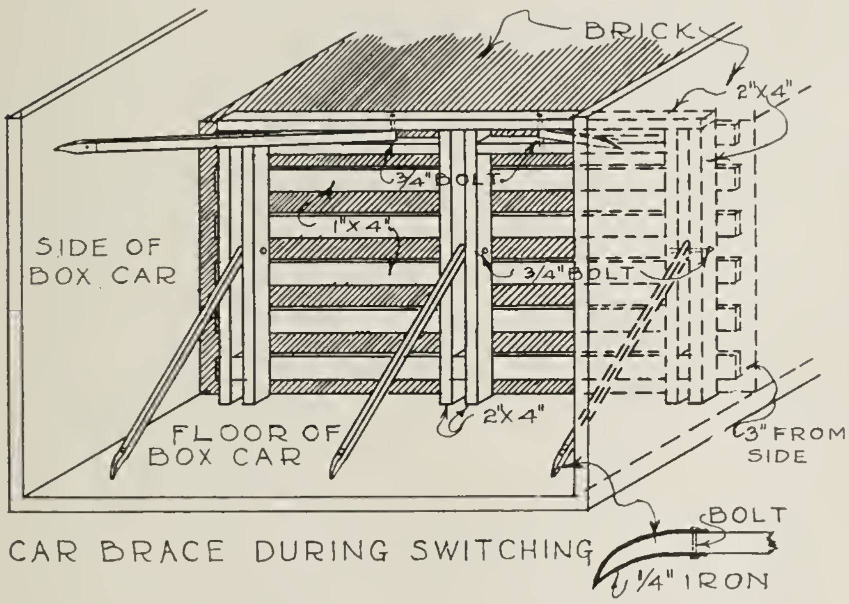
The prize winner for this issue is Thomas Hall, of the Washington Brick, Lime and Sewer Pipe Company, Clayton, Wash., who sends us a great little idea for

A Brace for Half Loaded Cars.

What Superintendent has not been annoyed by the switching engine that came into the yard during the day, and always at a time when cars are being loaded?

What Superintendent has not "cussed" the railroad and the switching crew when every man who ought to be loading has had to stop and nail in temporary braces to prevent the brick that are already loaded from being knocked down and damaged, not to mention the trouble of rehacking some of the rows?

What Superintendent has not wished he had some sort of a device that could be placed in a jiffy, do its work without any fuss or trouble, and be willing to come away just as quickly as it was "put"?



CAR BRACE DURING SWITCHING

We are using a device of this kind, and it is all right. Its main points of excellence are: 1.—It can be built by any factory carpenter or blacksmith at a trifling cost, the materials being such as are in every day use at the plant. 2.—It is light in weight and can be easily carried by two men. 3.—It can be put in place in less than a minute, all that is necessary being to butt it up against the brick and drop the braces. 4.—It holds securely against the brick, prevents their moving, no matter how hard the bumping. In fact, the harder the bump, the more securely the gate is locked. 5.—It can be taken out with no more labor and time than it took to put it in place.

Kiln Windows or Peep Holes.

We noticed an article in "Brick & Clay Record" from one of your contributors, describing a convenient form of peephole, which prompts us to give particulars of a very satisfactory one which we have used for years.

A piece of 1 1/4-inch iron pipe 10 inches long, with a thread on one end to which we screwed an ordinary nut union, or at least a portion of the union—that member with the external thread and the nut—a disc of window glass being clamped under the nut like a gasket. The nut should turn easily so it can be removed with the fingers if the glass should need cleaning.

This piece of pipe is set in the door of the kiln, but does not project all the way through the wall—about 7 inches being in the wall and 3 inches outside—this prevents the inner end of the pipe from being burned off.

We sometimes use the other portion of the union by screwing it loosely on the pipe and "puttying" the glass in with clay.

The use of this form of peep-hole has advantages over some other styles such as brick or clay plug, in that it prevents cold drafts of air from impinging on the cones and ware, and conduces to more frequent observations being taken.

During the water smoking, the glass may require cleaning, but after this period it will remain clear to the end of the burn.

The glass discs are cut from ordinary window glass in the following manner: With a diamond or wheel cutter, cut a square, then with glass-cutters trim off the corners making it octagon—the eight corners can now be nibbled off with a pair of tin shears or cut nippers, provided the glass and shears (or cut nippers) are held under water during the operation.

We use this method for cutting large discs for steam gages, and where a fine job is required, the rough edges can be ground smooth on a grind-stone. When grinding the edge, the glass should be held in the same plane as the grind-stone.—H. and B. Copping, Kankakee, Ill.

Economical Handling of Coal, Ashes and Kiln Waste.

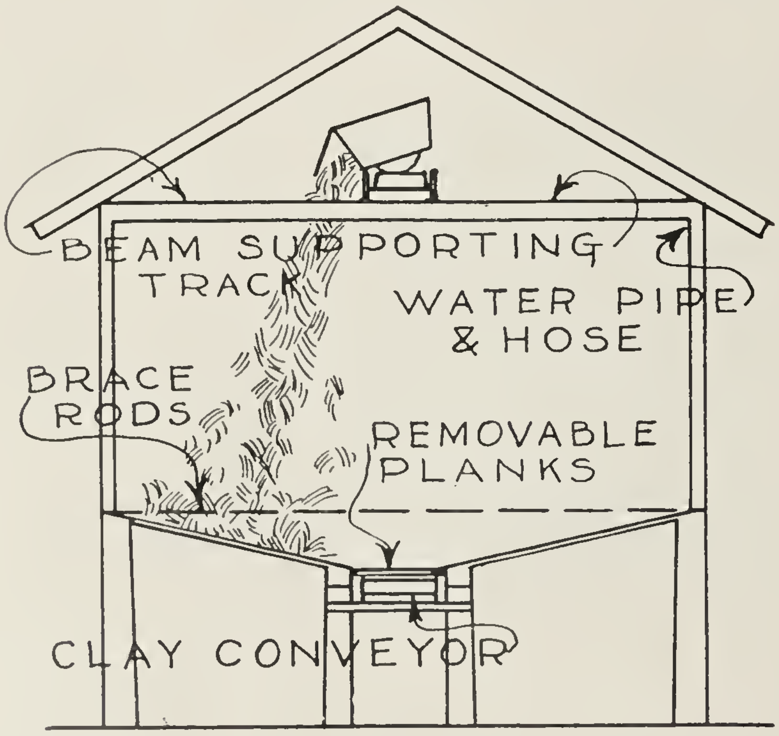
The following plan, submitted by F. C. Morgan, superintendent of the Puritan Brick Company, at Hamden, Ohio, has proven of great value to that company and is worthy of careful study on the part of readers of this department. Mr. Morgan writes: "This coal and ash handling equipment was installed by the writer at the Puritan Brick Company's plant, where the kiln equipment consists of two batteries of rectangular kilns having firing pits depressed four feet below yard level. An electrically operated transfer car runs between the two batteries of kilns to the dryer and brick machine on one end, and to a hopper bottom coal storage bin on the other. Tracks of the proper gauge for dryer cars are run from the transfer track through the center of each firing pit. This track is supported on trestle work over the firing pits. Drop bottom coal cars were built, to hold about one ton of coal each, using dryer cars as a base. These coal cars are taken to the coal bin on the transfer car, filled with coal from one of the chutes and returned to the firing pit where coal is needed. The bottom of the car is dropped and the car is shoved along, distributing the coal in a uniform pile through the center of the pit and directly in front of the furnaces. As run of mine coal is used at this plant, I find that the coal is distributed much more uniformly by this method than by the use of carts.

End dump cars, similar to those commonly used at coal mines, only much lighter, were made from dryer cars for handling the ashes from the pits, and the bats and other waste from the kilns and yards. These ash cars are shoved along in front of the furnaces and the ashes shoveled direct from the pits into them. When not being used for ashes, they are placed near the kilns from which brick are being removed so that any waste can be thrown into them. These ash and waste cars are transferred to a rocker car dump where their contents are dumped into larger side-dump cars standing on the electrically operated tram road leading to the coal and shale mines. These larger cars are dumped along the tram road where the material is needed for ballast or filling.

I find that one extra man, (three in all on the transfer car), will handle the green brick from the dryer to the kilns, return the empties to the machine, coal the kilns and remove the ashes. This work formerly required two carts, with their horses and drivers, and one coal wheeler in the pits. Furthermore the yard can be kept in much better shape and the runs used by the brick wheelers are not disturbed by passing carts."

Clay Storage System.

The clay shed in this sketch is three times as long as wide, the conveyer extending from within six feet of rear end to crusher. To feed, one man only is necessary, who pulls the clay down with a hoe taking up more planks as needed. As he works from the side next to the mill he can readily tell how he is feeding it. In cases of emergency, the conveyer is thrown out of gear. With this arrangement one man may feed even the largest of mills. The large shed is also an advantage during inclement weather, as enough clay may be stored for several days' run. I use the side dumping car in preference to the automatic because the clay can be spread over the whole surface instead of dumping it all in one place, and one man is necessary, anyhow, to run the hoisting drum and to temper the clay.—D. C. Postle, Mt. Victory, Ohio.



Burning Roofing Tile.

Many queries have appeared recently, says the "Deutsche Topfer-Zeitung," relating to the setting and burning of roofing tile. Many plants formerly engaged in the manufacture of building brick have taken over the manufacture of this article because of the good prices paid for such ware.

Difficulties are encountered, however, in the manufacture, most of them being due to poor burning, although they may be attributed to a number of other causes. These difficulties seem to occur most frequently when a continuous kiln is used. Yet in the majority of cases, the trouble is not due to a faulty kiln, but rather to its poor management.

In burning roofing tile in a continuous kiln, a long fire zone is necessary. Plants which would engage in the manufacture of this article, must, therefore, be so provided or have at their disposal a periodic kiln. It would be decidedly impractical for such plants desiring to take up as a side line the manufacture of from one to two thousand roofing tile and operating only a small continuous kiln, to do so without building an extra roofing tile kiln. Kilns having a burning canal of only eighty feet in length are turning out satisfactory ware, but the control is absolutely accurate.

The first requirement of a kiln of such short length is that a good water smoking arrangement be at hand, for the low fire zone is exceedingly short and it would be impossible to burn roofing tile if the ware could not be quickly preheated up to a temperature of from 350 to 650 degrees Fahr. However, if this is done, the preliminary firing cracks are avoided which is a great advantage.

We all know, on the other hand, that too rapid cooling brings about another difficulty which could not be avoided in a kiln of short length if some means were not provided to retard the cooling. This is accomplished by means of partition walls in each compartment provided at the bottom with two openings which are controlled by means of dampers. Cooling cracks can, in this way, be entirely avoided for the incoming air is thereby regulated. By such an arrangement roofing tile can be satisfactorily burned in a short continuous kiln and the installation is easily made.—Translated by Charles S. Kinnison.

Builder's Acid.

Builders' Acid, which is equal parts of muriatic acid and water, will remove spots of mortar on brick or stone work, but is not the right material for cleaning stone that is begrimed from smoke and dirt. To accomplish this, apply to the surface, with a long-handled fibre brush, a strong solution of caustic soda or pearl ash. Let it remain on for about fifteen minutes, then wash several times with clear water, using a stiff brush or broom for the purpose. If this will not be effective enough, scrub the stone with a stiff fibre brush, using soft soap and concentrated lye and sand, allowing this to remain on the stone until nearly dry, then rinse with clear water, using a brush to remove the cleansing material.—The "Builders' Bulletin."

Duplicate Machine Parts for Every Appliance.

The American Enameled Brick & Tile Company's plant at South River, N. J., is, in all probability, the most complete brickmaking plant in the country. Duplicates of every part of every machine in use are carried in stock, and, as a consequence, the plant never shuts down for repairs, these being made without the slightest delay. Everything about this plant points to good management and the output shows an attention to quality that is gratifying alike to the men who use the brick, and to those who believe that the future of the industry depends upon service given the growing demand for this material.

Lubricating Brick Machine Dies.

There is a considerable saving to be effected by paying somewhat more attention than is usually given to the lubricant used for brick dies, and particularly for that used in the mouthpieces of machines making wire-cut brick.

In the latter case, the lubricant serves two purposes, namely to form a frictionless medium between the clay and the metal of which the die is made, and also to soften the outer surfaces of the clay so that the fine particles may be pressed well into the interstices in the larger grains, and may give the clay that silky, smooth finish which is desired. Each lubricant will perform one or other of these duties, but there are not many lubricants which will give satisfaction in respect of both duties.

Thus, the oils are good for forming a medium between the metal and the clay and so reducing the power required to force the clay through the mouthpiece. Yet oil is not a suitable material for providing a satisfactory finish to the surface of the clay, because it reduces the speed at which the goods may be dried, and tends to form a hard and non-shrinking surface or "skin" which, later, breakes up into many minute cracks. Some oils have the further disadvantage of causing a large amount of scum on the goods.

Steam is much less valuable than oil so far as the friction between the clay and metal surfaces is concerned, but it softens the surface and forms a good finishing skin. Unfortunately, the heat of the steam tends to dry the surface of the clay too rapidly and causes small cracks to be formed.

Water is admittedly the best softened and finisher, but its lubricating value is low so that it must generally be used under considerable pressure and in somewhat inconveniently large quantity. It then exerts too great a softening influence on the clay and increases the very difficulties it is intended to avoid. Nevertheless, water is the best of the simple lubricants. It can, however, be improved by the following means:

The addition of a little soap or emulsified oil to the water will produce a fluid which has all the advantages of water, and, in addition, has a more powerful lubricating action. The nature of the soap and the oil is of small importance—cheapeness being the chief consideration. Very little soap is required—a very convenient proportion is 10 lb. of soap in 100 gallons of water, provided the soap is of reasonably good quality and does not contain too much unsuspected water. This can be ascertained by drying a weighed piece of the soap and noting the loss of weight. The soap should be dissolved by boiling thin slices of it in a little water, stirring well and watching that it does not burn. The solution may then be mixed with more (cold) water until the desired proportions are obtained. The soap solution may be applied by means of a pump or it may be kept in a tank in the upper part of the building and may flow into the die under its own pressure.

Several varieties of emulsified oil are obtainable at very cheap rates and are equally satisfactory. Instead of using them "as received" it will usually pay to try some experiments, diluting the oil with various proportions of water in order to see what is the least proportion of oil which will give good results. A few hours spent in this way will soon be repaid by the great saving effected in the quantity of oil used. Care must be taken that the emulsion is not destroyed on adding the water—if this is the case, the oil will rise to the top and will be useless.

Soap solution is pleasanter for the workmen than are most of the cheap emulsified oils, as the soap is free from the unpleasant, tarry smell which usually accompanies the emulsions used in brickmaking plants.—The "British Clayworker."

Some Grateless Gravity Installations.

Paul Beer of the Grateless Furnace Company, Des Moines, Ia., writes:

"You may be interested in knowing that, since the first of March, we have put in a complete equipment for the Kalo Brick and Tile Company, 20 kilns; the Carlisle Brick and Tile Company, 7 kilns; and John Sehy, Ashland, Ill., 2 kilns. We have also put in a trial kiln for the Bessemer Limestone Company, on which we have had a splendid report. The Barr Clay Company tried out six of our fireboxes on one kiln and have just ordered castings for a complete installation in one of their rectangular kilns, for a thorough trial. We have also, within the past ten days, shipped castings for a complete installation in a trial kiln for the American Refractories Company at Joliet, Ill., and the American Firebrick Company at Spokane, Wash. When such representative plants as Bessemer, Barr, American Refractories and American Fire Brick Company put in trial kilns which show good results, it will be only a question of a short time until our business will whoop 'er up to beat the band."

Nota Bene.

"N. B.," through the grace of the classics, is enabled to signify "Take Notice" in English.

"N. B." also forms the initials of Napoleon Bonaparte. He used to sign his letters and orders "N. B."

And when he did other people sat up and took notice.

As long as Napoleon was "N. B." he had the world by the neck. Anything he wanted done was done, because "N. B." at the bottom of his letter meant business.

But after a while Napoleon thought two names were too many for a man of his heft and achievements.

So he dropped the "B." and signed himself "N."

He quit being "Take Notice."

The rest of it is in a nice big sarcophagus on the banks of the Seine, where tourists go and muse and poets go and write stately things in blank verse.

To be a Napoleon in your own business and in your own territory, you've simply got to keep the "N. B." sign to the front.

People take notice of the man who takes notice.

Don't knock the "B" out of "N. B." Napoleon did and the B stung him.

Keep the B busy and it brings home the honey.—From "The Goodrich," House Organ of the B. F. Goodrich Company.

The Jackson & Church Company's Plant at Saginaw, Mich.

Don't Sell Machinery Unless Plant Gives Promise of Success

Sand Lime Brick Manufacturers Protected From Inexperienced and Badly Equipped Competition by Jackson-Church Policy

In the years 1900 to 1902, the city of Saginaw, Michigan, was in a transition stage; it had formerly been a one-industry town, relying entirely upon the extensive lumber interests which manufactured billions of feet of lumber from the magnificent white pine forests of the vicinity; with the exhaustion of the timber supply the mills one by one closed down and it became evident to the people of the city that they must engage in other lines of business if their city were not to disappear from the map. New industries of all sorts were encouraged and great success was met with in establishing varied manufacturing plants. One great handicap, however, was met in the failure of the local brick plants to produce a first-class building brick.

At about this time, a Saginaw man, whose business required frequent European trips, was struck with the superior quality of sand-lime brick so extensively used in Germany; returning to Saginaw full of enthusiasm for the then new product, he succeeded in arousing a very lively interest in the subject on the part of John L. Jackson and Edgar D. Church of the iron working firm of the Jackson & Church Company. Mr. Jackson immediately started for Germany on a trip of investigation and was so well impressed with the high quality of the product and the comparative simplicity of the method of production that he purchased the American Patent Rights on processes and machinery and returned to Saginaw, where he and his associates established in 1902 what proved to be the first successful sand-lime brick factory in America, and which has continued its operations profitably to the present time, notwithstanding the growing and vigorous competition of improved clay and shale brick made in and near the city.

The early days of this plant brought many vexing troubles due to the machinery being of more or less defective design and workmanship. Change after change was made and press after press was tried until in 1904 the Jackson & Church Company perfected an improved design of rotary table press which started immediately on a regular run of high quality product day in and day out in money making quantity. This original press is still in use doing as good work as ever and apparently fit for another ten years of steady service.

The successful working of this press and plant led Messrs. Jackson and Church to form a subsidiary company, called the American Sandstone Brick Machinery Company, to build and equip sand-lime brick factories for the customers whom the success of their local brick making plant had brought to their doors. This subsidiary company was later absorbed by the parent concern, the Jackson & Church Company, which now handles the business in its own name.

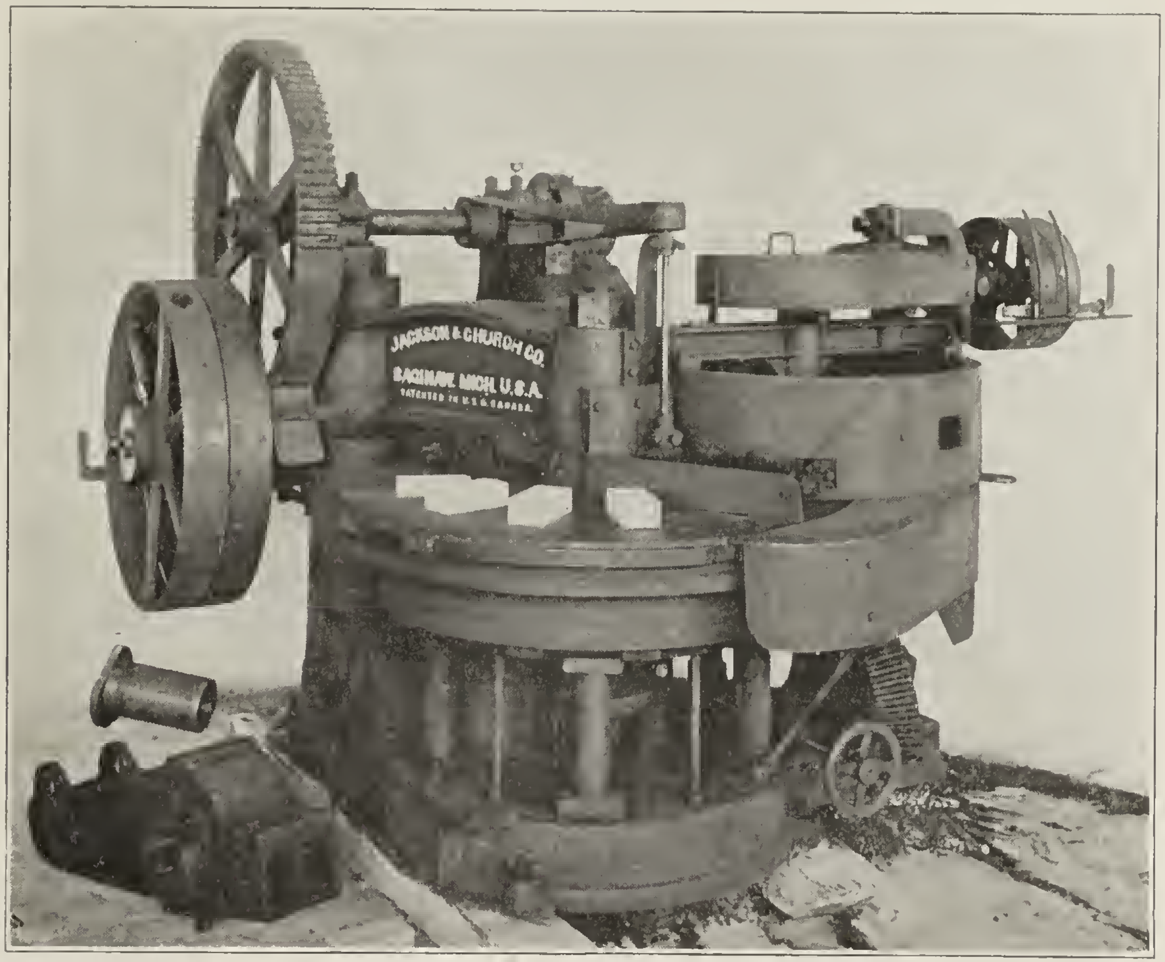
This company has established sand-lime brick plants widely distributed over the United States and Canada, and it is notable that these plants are uniformly successful and prosperous, and this is attributed to the fact that their machinery equipment is of a sort that has been thoroughly tested out and perfected by experienced sand-lime brick makers, and that the fixed policy of the Jackson & Church Company has been to thoroughly investigate the quality of the raw materials and the nature of the market of all concerns buying machinery from them, and to allow their machinery to be used only in cases where the prospective brick plant would have a reasonable assurance of success. The early days of the industry were marked by a boom in which unscrupulous promoters often unloaded plants at fancy prices in places where by reason of poor materials or poor market conditions, the plant had no chance of success. Jackson & Church machinery was never found in any one of these plants. Even where these promotions were well placed, it was frequently the case that the promotor cared more for his immediate profit than for the ultimate success of the business and installed unsuitable machinery. Several such plants have been re-equipped by the Jackson & Church Company and transformed into substantial successes.

One fixed policy of the Jackson & Church Company has been to keep closely in touch with all brick plants using their machinery, advising each of all improvements in processes, giving technical advice and in every way possible assisting in the production of a high grade article at a profit. That this service is appreciated is shown by the enthusiastic response invariably given by the users of their machinery when asked for an opinion as to its merits.

In a recent letter addressed to a prospective purchaser of sand lime brick machinery, the Crume Brick Company of Dayton, Ohio, said:

"Our machinery purchased of Jackson & Church has been in continuous operation for nine years and we have always been able to make good brick and get out the rated capacity of the plant.

"Our hardening cylinders, two holding ten cars each of eleven hundred brick or 22M, is the capacity of our plant and we are able to make this amount in about nine hours; if our cylinders were a little longer we could make 24M in ten hours.



The Jackson & Church Sand Lime Brick Press

"To show that we actually maintain capacity; we made last year in ten months 5,047,000 brick, the other two months were lost being unable to operate on account of the flood here for some weeks, and the two weeks we always shut down for overhauling our plant.

"Our press is in good condition and fit for many years of service and is today producing brick as good as any made in the country and the whole outfit is rugged and simple, and the absence of complicated processes and machinery makes it possible to operate with very few stoppages.

"In dealing with the Jackson & Church Company the writer has always found them absolutely reliable and fair and they have always given us the benefit of their improvements in both machinery and processes and also their service department has been prompt and always willing to do anything in reason to assist us."

One of the reconstructed plants is that of the Mouse River Brick Company at Denbigh, N. Dak. In a recent letter they say: "Our press is working fine and it is no trouble to fill our cylinder to the capacity with it every day, which is something unusual for us as you know what some of our past experience has been."

Another reconstructed plant is the Michigan Pressed Brick Company, Detroit, Mich., writing to the prospective buyer they say: "We installed the Jackson & Church press, February, 1909, and find that it is the only press for making sand-lime brick. Our daily average for the year 1912-13 was 26,000 and this year our average 27,000 per day in about eleven hours.

"In January of this year we installed the Jackson & Church Wet Pan and Storage Hopper and it does the work very satisfactorily."

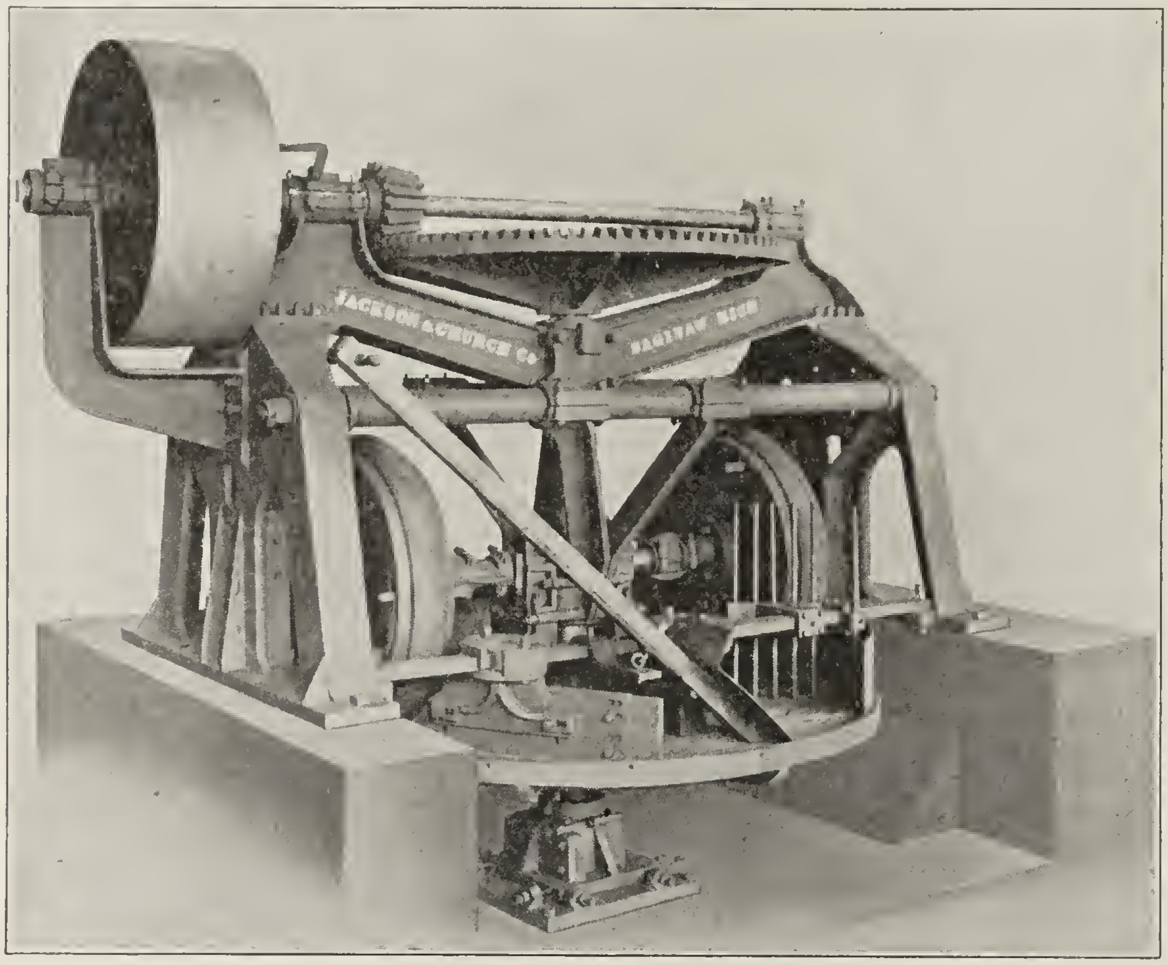
Along with the growth of their brick machinery business there has been an expansion of the sand-lime brick making interests of Messrs. Jackson and Church; they have installed plants from time to time at different nearby points until they now own control of and operate five sand-lime brick factories. They therefore have extensive first-hand experience with every phase of the business and the benefits of this experience they pass on to their customers.

As most readers of "Brick and Clay Record" are aware, sand-lime brick is a product composed of an intimate mixture of sand and hydrated lime, which after pressing are placed in steel retorts or cylinders where for a period of about ten hours they are subjected to a steam pressure of about 125 lbs. which hardens and cures them so that they are ready for the wall a day after being pressed; the product being clean-cut and uniform in size and possessing strength and durability not excelled by even the best clay brick.

The Jackson & Church Company owns a manufacturing plant covering one large city lot and parts of three others; it consists of modern and well-equipped foundry, machine shop, boiler shop and structural iron plant with the attendant pattern and blacksmith shops, storage warehouse, etc. The entire plant has been rebuilt within the past few years and has no superior for economical production of high grade machinery and boilers.

While the product of the factory includes duplex engines for dredging and hoisting service, special machinery, tanks and structural steel work, its special attention is given to machinery for the brick industry, including high grade tubular boilers, internally fired boilers of the Scotch Marine type, heavy duty engines especially adapted to brick plants of all sorts, and its line of sand-lime brick machinery consisting of lime hydrating outfits, mixing and grinding machinery for both lime and sand, wet and dry grinding pans, rotary table brick presses, hardening cylinders, brick cars, turntables, etc. When Jackson & Church Company equips a brick plant the entire outfit of machinery is of their own manufacture.

The "Saginaw" Wet Pan (which is made also as a Dry Pan) is a heavy, substantial and durable pan, designed for the exceptionally trying work of sand-lime brick factories. The Jackson & Church Company operated several sand-lime brick plants and after using the best pans it could buy, decided it would have to end the expense and annoyance of the continual breakdowns by building a pan so designed as to eliminate the weaknesses causing these troubles. The pan above shown is the successful result of this decision.


The Saginaw Wet Pan, which is Also Made as a Dry Pan

For the purpose of eliminating vibration and its resultant destructive tendencies it has been designed with short, stiff side frames of very massive section, securely tied together by a heavy bridgetree and by two large cross ties on each side; the bearings are brought close to the gears and provide an exceptionally rigid bracket for the bearing outside of the clutch pulley, and supply a strong cradle, braced to the two upper cross ties, to carry the inner ends of the muller shafts.

The table is extra heavy at points of strain, is faced to provide a true, level seat for the wearing plates, and is thicker at this point than any other table on the market.

Bearing plates and muller rings are made of hard, white iron to resist wear and are interchangeable. Provision is made for adjustment of the position of the mullers on their shafts so that their path of travel may be varied to suit the work and to completely utilize the entire surface of the wearing plates. A complete system of adjustable shovels, or deflectors, and stirring pins enables the material to be manipulated in any manner desired.

All shafts and bearings are of ample size and bearings are well lubricated. The lower end of the upright shaft has a hardened steel toe of large area, secured in a taper hole in end of shaft, running on a bronze step. The casing has an effective sand and dirt shield, and a side plate allows access for adjustment or replacement.

The gears are of heavy pitch and wide face and are of such ratio as to materially lessen the labor. The clutch pulley is powerful and effective and of such simplicity and dimensions of parts as to require practically no renewals of parts. Its usual size is 48 inches by 18 inches.

While the concern and manufacturing plant are large enough and sufficiently well equipped for economical production, the organization is small, so that the conduct of the business is under the personal supervision and direction of one of the four principal stockholders, John L. Jackson, president; A. G. Roeser, vice-president; W. L. Miles, second vice-president and sales manager, and E. D. Church, secretary and treasurer. This assures the attention that is essential to the success of any manufacturing business and the satisfaction of its customers.

St. Louis Has Good Flower Pot Clay.

A common laborer, digging a sewer trench in Forest Park, St. Louis, Mo., discovered a clay deposit which has since been found to be suitable for the manufacture of flower pots. As the land is city property, it is unlikely that the find will be exploited, unless it be in a small way, for the use of the Park Department of St. Louis. Considering the immense clayworking industries that are located in St. Louis, it seems strange that none are making flower pots, unless it be that the clay in Forest Park is the only deposit that has, so far, been discovered.

Nelson Brick & Tile Company Elect Officers.

Edward Olsen has been elected president of the new Nelson Brick & Tile Company, at Albert Lea, Minn., with James C. Jensen as vice-president, H. A. Nelson, secretary and manager, C. L. Swenson, treasurer, and F. W. Pofahl, superintendent. This company has bought the plant of the Albert Lea (Minn.) Brick & Tile Company, and has put in new machinery, giving the plant a thorough remodeling. It is expected that 30,000 four-inch tile will be the daily output, in addition to building brick and block.

Some Trouble at Westinghouse.

A number of the employes of the Westinghouse Electric & Manufacturing Company, and the Westinghouse Machine Company went on a strike last week, because the management refused to recognize the demands of the newly formed labor union, the Allegheny Congenial Industrial Union, and, as a result, the works of these companies at East Pittsburgh are partly shut down. The management of the companies does not believe that the trouble will be of long duration.

The Letter Box

A Repository for the Written Opinions of Practical and Theoretical Clayworkers

This page is offered to the clayworking fraternity as an open forum for the discussion of any subject which interests them. Criticism of articles that appear in this or any other journal will be welcomed, the only restriction being that the full name and address of the writer must be signed to his communication. This will be printed unless a specific request is made that the name be withheld. Letters should be addressed to The Letter Box, "Brick & Clay Record," Chicago.

Professor Montgomery's Article Creates Comment.

E. Schmatolla, combustion and ceramic engineer, writes:

To Professor T. E. Montgomery's very interesting article on Refractory Brick, published in your May 19 issue, I beg to make the following remarks:

In the introduction to his article, the Professor has very convincingly stated what refractory brick must be, and I completely agree with him, wishing that the modern combustion engineer and furnace and kiln builder would always get fire brick with such qualities as are mentioned by the author.

Having been connected with kiln work in Germany and other European countries for more than 15 years, and in this country for more than 5 years, I do not doubt that the United States is the richer country in natural deposits of highly refractory raw materials, and that it is bound to have a great export in high-refractory goods in the future, as the deposits of some of the other countries that have been exporting are becoming more and more nearly exhausted.

In regard to fire-clay brick, while completely agreeing with Professor Montgomery's statements concerning their manufacture, I regret to say that in my practice, building furnaces and kilns for high temperatures, I very seldom secured fire brick that complied with the requirements.

I found that firebricks which really have been made of the finest high alumina fire clay flint shrunk in the high temperature of a gas kiln to such an extent that they fell out of the arches and even walls. The reason of this drawback is in the manufacture, not in the material, particularly in the low temperature at which many high-class fire brick brands are burned. Most of the high-class fire brick are burnt in this country in very primitive down-draft kilns, the draft of which is produced by a very low chimney, which cannot produce temperatures similar to those of a modern gas-fired kiln.

But modern gas-fired kilns become more and more used in many industries of this country, and the fire brick industry of this country, generally speaking, excepting a few modern manufacturing firms, has not kept step with the development of modern combustion engineering. I am far from blaming the manufacturer; it is not their fault, the main reason is the low price which is paid in this country for high-class fire brick, a price for which the German Fire Brick Manufacturer supplies the common fire clay brick, although everything, wages, material, etc., is cheaper in that country. A special made fire brick, the material of which is specially mixed and always burnt twice, is sold for about double the price compared with that paid for first-class fire brick in this country. I am also convinced that the American manufacturer can sell special quality goods for a special high price if he proves that this special brick will stand twice or three times as long in the arches or linings of high temperature furnaces or kilns, because every manufacturer will understand that he saves several times the amount of the highest price fire brick if he has to run out his furnaces or kilns for repairs only once in a year, instead of twice or three times. Generally it is only a comparatively small part of a furnace or kiln which needs a special material, therefore the higher price is not so considerable in the total.

A kiln in which fire brick made from the highest refractory material, burnt twice, pressed at high pressure without the addition of a binding material of lower refractory quality, can be burnt at such a temperature that they will not shrink later, is described in another article of the same issue. This kiln also allows an individual tempering and cooling of the goods, which is very important for certain high-class goods.

The same may be said of silica brick; the less binding material a pure high silica brick has and the higher the temperature at which it has been burnt, the better it will stand high temperatures and resist the mechanical and chemical attacks. I have used them successfully in gas-fired lime kilns at points where the temperature occasionally rises very high, and where the lime acts chemically upon the lining. For these and similar purposes I do not think much of the silica brick, which have a high percentage of the clay binder, as the clay binder softens at much lower temperature than the silicious grain. Such brick may look better and harder, but they do not stand very high temperatures, although they may be good for abrasion. The denser a pure high silica brick is burnt the better it will also stand changes in temperature. But the modern gas furnaces and kilns are very seldom cooled off, and, therefore, high silica brick will be used so much more for such modern equipment.

Regarding magnesia brick, I cannot agree with the author that the white Grecian magnesite cannot be used for this purpose, being too pure and too refractory. About 15 years ago, and later, I was for months on the Island of Enboca, Greece, and erected gas kilns there for caustic and dead burning of magnesite, and many such kilns are in use there now. I always was, and am, a strong believer that the finest and highest refractory fire brick can be made from almost pure magnesite and have proven this years ago in my experimental plant at Berlin, Germany. See my other articles on regenerative kilns.

This fact is very important for this country, as it is not only one of the biggest consumers of such material, but has the biggest natural deposits of a very pure magnesite in California. So far, thousands of tons of Grecian magnesite have been imported to this country from Greece, and Macedonia every year, but the opening of the Panama Canal will reduce the freight rates from California to the eastern states, so that this magnesite will be able to compete with the Grecian magnesite, the deposits of which are getting poorer and more exhausted every year. California will soon be able to bring the finest magnesia brick on the market, as it not only has large deposits of very pure magnesite, but also a cheap crude oil which, when burnt in a regenerative furnace, gives such high temperatures which hardly can be reached by coal gas.

Differs With George Vater.

William A. Butler, of 1450 Hayes Street, San Francisco, Cal., writes the following answer to Prof. Binns' criticism, published in the March 7 issue. He also takes exception to some of Mr. Vater's statements, as made in the article on continuous kilns, published May 5. The letter follows:

Among other interesting things in your May 5 issue, appears an article from Professor Binns, who takes me to task for expressing an opinion. If I have tread on his corns I am sorry to have stirred up his American fighting blood.

However, the expression of an opinion, whether it was entirely erroneous or otherwise, has brought out facts that would probably require a week of cross-examination by a Philadelphia prosecuting attorney.

We now take it for granted that there is one foreign substance only which is responsible for scum, and that is sulphate of lime or the ingredient of plaster of Paris. If this substance is already in the unburned brick at the time of firing, the resultant material in the shape of burned brick, while they may resist fire, flood and time, the chances of their being placed on the outside face of a wall are reduced to an infinitude.

Carbonate of barium is the only remedy that will save the brick from the fate of being the inside of a brick wall. As the chloride is a dangerous material to use, especially if its use is overdone or come tardy of, we will relegate it to the place where it belongs.

Again, if our unburned brick have lime on the surface, which has been drawn out in drying in the soft or stiff mud process, or in the watersmoking in the dry or semi-dry process, or by the application of the whitewash brush, our burning them with coal, that produces sulphurous and tormenting flames will make the brick as unfit for a front as the back of a rear brick wall, whereto it goes.

But let us cudgel our brains no longer on this point as "we know that if we fire with pure carbon or desulphurized fuel or if we watersmoke with wood or an uncontaminated, non-sulphured waste heat from cooling brick or bake oven until all the brick are aglow, it is "nix on the scum."

"How to Build a Continuous Kiln," by George Vater, is an interesting article. While I have written on this subject slightly differing from him, there are many points for commendation. However, under the heading of "walls" beginning with the second paragraph, or fifth line he writes: "The outer, or batter walls, are to be laid with joints vertical to the batter line. The brace walls (ribs) are to be laid with joints continuing those in batter wall and in perfect bond with the batter wall, but not tying into tunnel wall."

After reading this paragraph over a few times, I came to the conclusion that what Mr. Vater wished to convey was the brickwork of the batter wall should be done so that the bed-joints of the bricks are square with or at right angles to the batter line and that the brace or rib walls should also be laid at the same angle into the ground to the foundation line on the bottom and extending to the inside kiln wall above, a straight joint being made between the inside of the kiln wall and the downward sloping brace or rib wall.

This is the system employed in the Youngren gas fired or Raymond kiln. In the Haigh kiln the brick are laid level; with the bed-joints horizontal and the cross-joints vertical in the batter and brace or rib walls. The batter of 1÷3 is made in small horizontal offsets or steps. I take it for granted that 1÷3 batter means 4 inches horizontal and one foot vertical or 4 inches to a foot.

The word vertical, as I was taught at school, means exactly plumb. The word perpendicular is often used to define a right angle or square. It would, therefore, be correct and proper to state that the courses of brickwork should be laid perpendicular with or to the batter line.

So, wishing Mr. Vater success in the rest of his articles, and commending him for the suggestion of tarring the outside of the kiln, I will close.

The article by Mr. McElroy, Cr. E., is excellent and I will have something to say about pre-heating combustion air for down draft kilns in another letter.

Another Candidate for Chaldean Honors.

The following letter, from J. F. Villalta, C. E., of Barcelona, Spain, is offered to "Brick and Clay Record's" readers for careful perusal:

Enclosed please find a sight draft issued by the Banco Aleman Transatlantico of Barcelona, No. 169,293 for Dollars 20 and payable to the National City Bank of New York, and duly endorsed to you by us.

But not all this money is for you.

You will be so kind as to send to the secretary of the National Paving Brick Manufacturers' Association, Mr. Will P. Blair, the sum of Dollars 10 in our name and you please accept our thanks in advance.

We wish you to send us, together with a few books we order below (paying for them naturally) the following:

Two copies of "The Life of Portland Cement."

Two copies of "The Home Beautiful," a face brick boosting booklet.

Also we should be very much obliged to you for sending to us of several photographic copies of the cuts published in some "Brick" issues, illustrating streets and roads paved with brick, especially the two of the pages 802 and 803 of the April 7th.

You, no doubt, have the photographs original and perhaps duplicate copies of said original photos. We are willing to pay some money for them—understand, some cents, not some dollars, for each—for we are not going to make any money out of them, but use them only for boosting purposes and for pushing the sale of American machinery, and probably American paving and face brick.

Now we are going to allow you to earn for a living.

Please send us, by registered mail, "The Hollow Tile House" (Dollars, 2.50); "Potter's Craft—Binns" (Dollars 2); "Radford's Brick Houses" (Dollars 1); "Highway Construction—Phillips—Byrne" (Dollars 1); "Masonry Construction—Phillips—Byrne" (Dollars 1); "Art of Practical Brick Cutting and Setting" (Cents 60); "Practical Brickwork" (Cents 60); "Rudiments of Brickwork" (Cents 60); "How to Analyze Clay—second edition" (Dollars 1).

If you wish to, you may send us a Chaldean gold button and let us know how much money would cost a membership in the volatile wild cow antique order. It will be very appreciated. We shall not make much shadow in the cavern of this tenebrous order, but our dollars are always ready to co-operate to American ideas and amusements.

Wishing you the most of success and trusting to hear the sooner from you and to receive plenty of photos, gold buttons, books, etc.

It is a far cry to Barcelona, but the fame of the sacred Bull of the ancient clayworkers on the Tigris has reached across the Atlantic. The spirit of co-operation seems as strong in sunny Spain as in the valleys of the Ohio and the Mississippi.

Thinks Open Price Too Conservative.

C. B. Platt, Secretary of the Iowa Clay Products Manufacturers' Association writes:

There seems to be much of an encouraging nature in the situation with the clay industry and your paper will be of great value in making the good work progress beyond where it has already gone.

It seems to me that the main point just now is for the producers to take a sane view of what competition really is when considered in a sense where it truthfully can be termed the life of trade. Competition of value to the consumer individually, to the State and to the manufacturer, should be considered as a strife to gain and hold business through the inducement of quality and service. It is obviously non-economic for the manufacturer to attempt to maintain quality and service when he considers competition to mean strife to sell at low prices and enters into it without a knowledge of the average cost of production.

I am not sure that it would not be a very good thing for the State to demand of every manufacturer in every line that he calculate his costs by an approved method, report it to the State and be advised what the average cost is within certain market areas and be assessed a penalty if he sold below the average cost. The State does not profit by the selling of any commodity below the cost of production and the consumer ultimately pays the penalty through some source or other. If the State sets a minimum selling price, based on average cost of production, it follows that competition would be based on quality and service and the extent of profit would, as naturally as now, be regulated by the supply and demand. It is, or has been, a fact of common observation that a clay manufacturing concern will go to great expense in equipping its plant to enable it to produce below the average cost and then enter into the competitive field with a cut in price often greater than its saving in cost over the average cost price. It thus loses the opportunity to compete on quality and delivery, and lowers the standard of quality throughout the field. In associations, I see the opportunity for the individual to get a more sane angle on his relation to the other producers in his line and his responsibility in maintaining, through the proper acts, a feeling which will grow to a conviction that he will serve himself, his industry and the State to the best possible advantage if he will consider that it is not a personal declaration of war between himself and some competitor when the competitor happens to sell a bill of goods to a customer whom he thinks is tied up and labeled with his card. I think there are comparatively few real salesmen, for a really good one is one who will take into consideration the effect of his sale on other merchants. If he has made it by cut price methods, he can expect a return of the compliment; if he has made it on the strength of quality, he has strengthened his competitors' belief in quality and he has excited a desire on the part of a possible customer to use the product. I cannot conceive of a sale that is well made, as far as concerns one who expects to remain in his line of endeavor, if it is sold with a knowledge of the price being below the average cost of production.

I have this objection to the open price question, that it does not go far enough, if I understand the idea in its full meaning, to be of much weight during times when trade is light and price competition is advancing its strongest influence. I know the difficulties besetting the manufacturer in need of ready money but, if his commodity were standard in quality and if it were known what the average cost of producing the commodity really was, it would be an easy matter for such a manufacturer to raise money on his stock on hand, at a cost far less than selling outright at a figure below the average cost and a reasonable per cent added profit.

About the only combination, lawful or evasive which will hold water in the matter of price fixing, is the trust, so called, or actual ownership, under one title, of the producing units formed in the regular process of competition. The open price will be effective for awhile but it is going to be difficult to get under way. I hope it will be effective in cases of a slump in demand and would like to see more of it in effect.

I hope you will keep the cost proposition before the clay people and emphasize its greatest possible advantage: that cost determination will lead to a knowledge of average cost and it will be a constant restraint on unwise price competition and an incentive toward improved methods and improved quality.

This is distinctly along the lines of modern thought and "price maintenance" is being discussed in every commercial body of importance. While the man who sells below cost penalizes himself with the immediate loss, the evil effect extends to every one in the industry in which he is concerned. It would, perhaps, be asking too much of even the most paternal government to compel the adoption of a uniform cost ascertaining system and to couple with it a law against selling any commodity at a price which was less than the commodity itself cost to produce but it is to be hoped that association work will help present conditions.

Hudson River Common Brick Production

The Hudson River region produced 1,025,308,000 brick in 1913, valued at $5,636,061, according to a statement by Jefferson Middleton, of the United States Geological Survey. Large as these figures are, they show a decrease of 207,879,000 brick and $1,497,116 in value compared with 1912.

New York City is the leading market for common brick in the United States, hundreds of millions of brick being used there annually. The principle source of this supply is the Hudson River region, extending from New York to Cohoes on both sides of the river. Bergen County has also contributed largely to this market, and within the last two years, the Raritan region, located in Middlesex County has sent the larger portion of its output of common brick to the New York market. Connecticut also is at times a factor in the New York brick market. The water transportation enjoyed by the Hudson River yards and those located in the Hackensack and Raritan districts, however, gives them a great advantage, and it is only when prices are high—say $7—that Connecticut brick can profitably enter New York City market. As prices were unusually low in 1913, few if any Connecticut brick were shipped to New York during that year.

The principal use of the brick made in the Hudson River region is, and probably always will be, in the building industry of New York. Notwithstanding the fact that the expenditures for building operations in New York City decreased about 35 per cent in 1913 compared with 1912, the number of brick marketed decreased less than half as much, thus showing that the use of brick in building is expanding and that they are also being used more extensively than ever before for other purposes, such as sewers and subways.

The "back to brick" campaign is apparently having its effect, not only on the demand for common brick, but also on that for the higher grades of building brick and other clay products, such as hollow building brick, tile, and terra cotta.

The average price obtained for brick in 1913 was $5.50 a thousand.

Production of common brick in the Hudson River district (from Cohoes to New York City) and the Raritan district, New Jersey, in 1913 by Counties.

		1913.		
		Common Brick.		
County.	Number of active firms reporting.	Quality.	Value.	Average price per thousand.
		Thousands		
Albany	12	61,792	$ 363,864	$5.89
Columbia	6	58,593	300,624	5.13
Dutchess	18	113,120	610,457	5.49
Greene	5	24,214	118,845	4.91
Orange	9	98,493	525,887	5.34
Rensselaer	5	14,076	87,063	6.19
Rockland	25	163,612	890,188	5.44
Ulster	24	194,125	1,026,870	5.29
Westchester	7	51,748	297,504	5.75
Total for New York portion of district.	111	779,773	$4,221,402	$5.41
Bergen County, N. J.	10	50,844	294,106	5.78
Raritan District (Middlesex Co.), N. J.	11	194,691	1,120,553	5.76
Grand total	132	1,025,308	$5,636,061	$5.50

A Practical Demonstration of Brick Pavement.

The East National Avenue road in Clay County, Indiana, is being used to good advantage in "plugging" for brick paved streets and roads. The Indiana Paving Brick Works, of Brazil, Ind., who furnished the brick for this highway, is taking many prospective buyers out to look at this splendid piece of workmanship, and, after driving them over a mile or more of the solid brick pavement on National Avenue, they are suddenly bumped onto the Kentucky rock asphalt street and the example is a big boost for paving brick. This company and several other brick concerns have had photographs made of the new street.

New Methods and Processes

A Department of Technology Wherein Recent Experiments and Discoveries Are Exploited for the Benefit of the Clayworker Who Wishes to Keep Abreast of the Times

Edited by

Charles S. Kinnison

Ceramic Chemist, United States Bureau of Standards, Department of Ceramics

Cylindrical and Conical Rolls.

It is claimed, and often, that conical rolls possess a decided advantage over those of the cylindrical type. Before stating definitely the relative merits of the two types, we should endeavor to point out their distinguishing features of operation.

Cylindrical rolls, in their operation, grip the clay at all points on their surface, pulling it down through. A shearing action or lateral movement of the lump of clay is practically excluded, and the material goes straight through between the rolls.

Since, when properly operated, the material distributes itself uniformly over the entire breadth of the rolls, there exists on the one hand a satisfactory output as a result of the utilization of the entire surface, and, on the other hand, a uniform degree of wear, provided of course that the rolls themselves are of practically uniform hardness thoroughout.

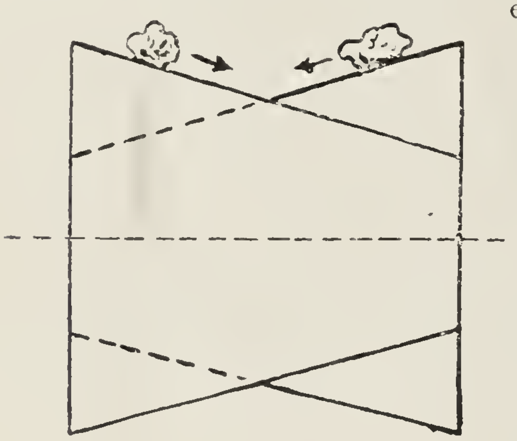


Fig. 1.

The action of conical rolls, however, is distinctly different from that just described, since here the varying diameter of the two rolls plays an important part. Fig. 1 illustrates a pair of conical rolls and shows the clay as it has fallen onto them. Without any explanation, it is apparent that the material will feed towards the center where the diameters of the two rolls are equal, at which point it is gripped and forced down through between the rolls. Since the material feeds from the left as well as from the right, it is evident that the center is subjected to the hardest work and of course shows signs of wear first. As a result of this action, the rolls, after a certain length of time, depending upon the material being crushed and the hardness of the rolls themselves assume a shape represented by Fig. 2.

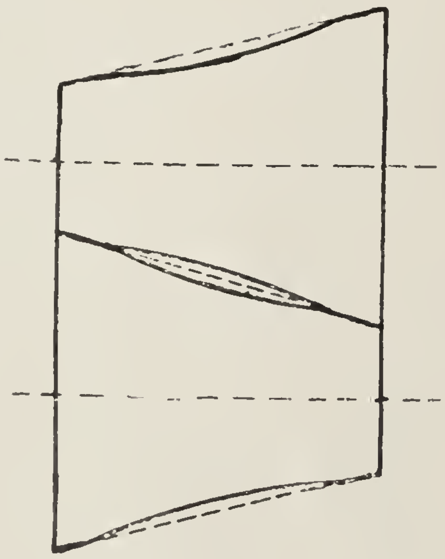


Fig. 2.

It is apparent also that this class of rolls does not have as great a capacity as do those of the cylindrical type, the latter having a much larger working surface as mentioned above. A further disadvantage of the uneven wear is the difficulty of keeping the scrapers adjusted to fulfill their purpose without frequent examination.

The advocates of the conical rolls emphasize the value of the varying speeds of opposite points on the two rolls. This results in a shearing as well as crushing action. Fig. 1 brings out the fact that at the point where most of the work is done, the middle, the diameters are equal and consequently the shearing action a minimum, or does not exist.

A shearing action can be obtained in using cylindrical rolls by simply varying the speeds at which they rotate, which can be easily done by gears of different size, or by driving each roll separately, using pulleys of different sizes. Obviously then, neither type of roll possesses any advantage over the other in this respect.

Both classes of rolls show a tendency to wear out first in the center. The explanation for this, in the case of conical rolls, has already been mentioned. This trouble is experienced to a slight extent in the case of cylindrical rolls, due to the fact that the clay material is very seldom fed uniformly on to the rolls, but rather as a rule towards the center.

The wear of cylindrical rolls is characterized more by the development of small grooves, as shown by fig. 3. These grooves grow rapidly, of course, when once started because, in the nature of the case, they receive the burden of the work. The development of these grooves is due primarily, of course, to lack of uniformity in hardness of the material being ground. It is impossible to build rolls of uniform hardness throughout, and this, also contributes to the trouble mentioned.

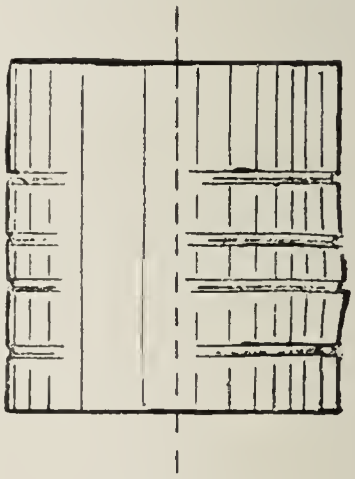


Fig. 3.

There seems to be no type of scrapers on the market which will eliminate the development of these grooves and it becomes necessary to have the rolls turned down to proper conditions from time to time. In this process, however, the rolls acquire a smooth, slippery surface which is undesirable. The smoother the rolls the less effectively do they grip the clay and pull it down. The texture of the surface depends primarily upon the hardness of the material from which the rolls are made. As is well known, they are generally case-hardened castings, and because of the method of cooling, it is practically impossible to produce a casting of uniform hardness throughout. Rolls made in this way are, as a rule, of such hardness that it is practically impossible to cut them with the ordinary tool steel. When an attempt is made at turning them, the result is more in the nature of a scraping, producing a smooth, slippery surface.

Rolls made from steel are made more satisfactory inasmuch as they can be "dressed" down without any trouble, acquiring, thereby, a surface of such nature that they grip the clay tenaciously. As a result of their uniformity of texture and hardness, the above mentioned grooves develop very seldom.

A summary of the foregoing would tend to show that the cylindrical rolls possess the advantage over those of the conical type. It furthermore seems that scrapers are not of as much advantage as they seem at first thought. The best idea is to have a reserve set of rolls ready for use when those that need turning down are sent away for that purpose. —"Deutsche Topfer-Zeitung," Translated by Chas. S. Kinnison.

Determination of Softening Points.

It is often desirable to learn the melting points of fire brick and similar refractory materials. Most fire brick are, as a rule made up of coarse grained materials, making it difficult to obtain a representative sample for the melting point determination. The finer grained materials have perhaps already been fused to some extent when the brick was made while the coarse grains, such as quartz, for example, are still entirely intact. The question naturally presents itself as to whether the actual softening point of the brick is truly represented by such a sample as mentioned, and whether it would not be more satisfactory to crush a fragment of the brick to a fine powder and mold it into a small cone, using some material like dextrin as a binder. The melting point of the material finely ground would be somewhat lower than if coarse material were used, says Tonindustries-Zeituing, a German paper devoted to the clay industry in describing some tests made to determine the extent of this lowering.

A study of this point is described in which four different types of fire brick were investigated as follows:

1. A second grade silica brick, with clay as a bond.
2. A right grade quartzite brick also bonded with clay.
3. A fire brick made of grog and fire clay.
4. A fire brick made of a refractory shale and bond clay.
5. A Dinas brick bonded with lime.

A good sized fragment was broken from each brick and these broken into halves. From the one half, small cone shaped chips were cut, while the other half was ground to pass a 200 mesh screen. From this powder small cones were made, using dextrin as a bond. Since it was possible that the alkalies in the dextrin might have an unfavorable effect on the melting point, a third series was accordingly made in which the cone shaped chips were soaked in a thin dextrin solution. In this way the effect of the dextrin would be practically the same in both types of cones, so that the effect of grinding would not be obscured. Fusion tests were made in the well known Deville furnace in the usual way.

The results of these tests show that the softening point was lowered considerably by grinding. To see the effect of still finer grinding, a third series was run in which the material was ground to practically an impalpable powder. This material was tested in the same way as above. The results are compiled in the following:

TABLE OF MELTING POINTS.

No.	Fragment.	Fragment with Dextrin.	Powder.	Extremely fine powder.
1	30	30	29	28
2	32-33	32-33	31	29-30
3	32-33	32-33	31-32	30
4	near 35	near 35	near 35	33
5	near 35	near 35	near 34	32-33

It is seen that dextrin is without effect on the refractoriness, but that pulverizing exerts a marked effect in lowering the melting point. The lowering averages about 1 cone, while in the case of No. 2 the lowering averages about to practically 1 1/2 cones. Further grinding as the table shows, lowered the melting point still further. The effect of finer grinding is shown more markedly by No. 2, the quartzite brick, bringing out the fact that quartz in a finely divided condition melts more readily than the courser grained article.

The foregoing proves that it is best not to grind the material to be tested, but the use of a small fragment is to be recommended, since it more nearly represents the condition of the material when in actual use.

As the final study, an investigation was made as to the effect of the burning temperature on the subsequent refractories of the material. The material was tested in the raw state and also after being burned to cone 10 and 20. It was shown that the burning temperatnre, within these limits, did not affect the subsequent refractoriness of the material in question.

New Technical Publications.

The Department of the Interior (Bureau of Mines) has published the following bulletins and technical papers, all of which are ready for distribution and can be obtained by applying to the Director of the Bureau of Mines, Washington, D. C., mentioning the number and title of the paper or bulletin:

Bulletin 57. Safety and efficiency in mine-tunneling, by D. W. Brunton and J. A. Davis.

Bulletin 79. Abstracts of current decisions on mines and mining; March to December, 1913, by J. W. Thompson.

Technical Paper 35. Weathering of the Pittsburgh coal bed at the experimental mine near Bruceton, Pa., by H. C. Porter and A. C. Fieldner.

Technical Paper 62. Relative effects of carbon monoxide on small animals, by G. A. Burrell, F. M. Seibert, and I. W. Robertson.

Technical Paper 72. Problems of the petroleum industry; results of conferences at Pittsburgh, Pa., August 1, and September 10, 1913, by I. C. Allen.

Technical Paper 74. Physical and chemical properties of the petroleums of California, by I. C. Allen, W. A. Jacobs, A. S. Crossfield, and R. R. Matthews.

Too Busy to Read.

He is a familiar type—the fussy, fretful man who imagines that he is about the busiest fellow in town. He often dumps in the waste-basket, unwrapped copies of business or technical magazines that contain valuable articles bearing directly on his problems. He fondly believes that he is too busy practicing to bother with what others are "preaching."

The trouble with this type of man is that he has not learned that the real executive is the man who so plans his work as to leave a reasonable amount of time for reading and planning. The man who declares he has no time to read is unconsciously advertising his small calibre, his slavery to detail, his arrested development.—The "Builders Bulletin."

Western Pavers Postpone Open Price.

In a letter recently received from G. W. Thurston, secretary of the Western Paving Brick Manufacturers' Association, announcement is made that action relative to the adoption of the open price policy was not taken at the May meeting, but would, in all probability, come up for discussion at the meeting which will be held June 20th.

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Questions

A Department in Which Workers in Clay May Ask for a Solution of Any Problem That Confronts Them in the Plant or Office

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Coloring for Sand Lime Brick.

467 *New York—Can you tell us what oxides work most satisfactorily in coloring sand lime brick and whether it is possible to avoid the trouble that we are experiencing in the use of iron oxide for this purpose? The process through which our material passes is as follows:*

The raw clay is taken from the ground and calcined to a clinker. These clinkers are then pulverized to various degrees of fineness and to this, crushed burned clay is added, six to eight per cent of hydrated lime and five to eight per cent of mineral red color. These are mixed dry and then passed on to another mixer where five per cent of water is added. The material is then fed into the press and moulded into brick. These brick are loaded on cars and passed into a hardening cylinder for approximately ten hours under steam pressure of 125 pounds. The outer cars of brick and the ends of the brick which are fully exposed to the steam come out a good red color but the brick in the center of the pile have a bluish grey color. At first, we thought it was the addition of the hydrated lime which produced a bluish grey color but we found this to be incorrect when we examined the ends of the brick which were of the desired shade. We quite appreciate that the addition of the hydrated lime would enable us to use less color but whether the amount of the metallic red color is increased or decreased, the two shades on the one brick are still produced. We are particularly anxious to be able to produce a good red brick from this clay as it is a well known fact that there are far more buff burning clays throughout the country than red and such clays are usually not the most suitable for manufacturing under the other process and this is where the Roman Ante-Fired process has a great advantage. Might also state that there are four other plants being installed which will operate under our patents and we are anxious to provide them with the proper information so that suitable red brick can be made.

At long distance, it is a difficult matter to correctly diagnose the trouble you experience in obtaining a product of uniform color.

A possible explanation of the lack of uniformity of color may be found in the fact that most of the hematite ores contain some ferrous sulphate which is soluble. Evidently evaporation takes place more rapidly in the outer courses of brick than in the center ones. Where the evaporation is slow, obviously the water is longer in contact with the hematite and more time is therefore given for ferrous sulphate to dissolve, which is then brought to the surface of the ware, the same as any other soluble salt, and deposited as a dirty scum, producing the undesirable color mentioned. Evaporation taking place more rapidly from the outer courses, there is not so much opportunity for the solution of the ferrous sulphate to take place and hence the scum is

& Answers

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less evident or perhaps entirely prevented. It would seem in your case that evaporation of the water was desirable, as shown by the color of the outer courses. Hence it might be a good idea to try giving all the brick the same opportunity to dry before being put into the hardening cylinder. It might furthermore be a good idea to try washing the hematite with the idea of removing any soluble salts which it may contain.

It is well known that hydrated lime exerts a certain influence on the coloring action of hematite. This is one trouble that the manufacturers of a red colored sand lime brick experience. If the brick are not allowed to dry before being put into the hardening cylinder, the deleterious action of the lime on the color is minimized and hence in this industry, it is customary to cover the brick with damp cloths, to prevent evaporation. As mentioned previously the reverse of this—encouraging evaporation—seems desirable in your case.

This action of lime and iron is not well understood. A chemical analysis does not reveal the cause of the bluish color. It has been suggested that it may be due to the presence of magnetic oxide of iron, but no explanation is offered to account for its formation.

The Bureau of Standards located at Pittsburgh, Pa., 40th and Butler Sts., is interested in solving such problems as this and we would suggest that you send them samples of both the desirable and undesirable products and also some of the hematite and clinker which you are using.

Has Trouble in Burning Drain Tile.

462. *Ohio.—In burning our drain tile, we find considerable difficulty in getting the bottom as hard as the top. The appearance of the tile is much the same, top and bottom, but those from the bottom are not as well finished as those from the top. At times we get a whole lot that have fine little checks on them, the checks running in every direction, but not going deeply into the shell of the tile. They do not really harm the ware, but they look bad. We have a 24 ft. inside diameter kiln and have tried using salt. We used a half barrel of coarse salt to the kiln when finishing the burn, and this seemed to make the top tile redder, but we cannot seem to see much effect on the bottom courses. Can you suggest any way whereby we can bring the bottom into the top, both in color and quality?*

Your trouble lies in your draft, your kiln or your method of burning. To remedy this, it would be necessary to have n expert go to your plant and study the way you handle your kiln, and watch the ware from the time it was set until it came out. We would not attempt to give any advice until we had made a personal visit to the plant.

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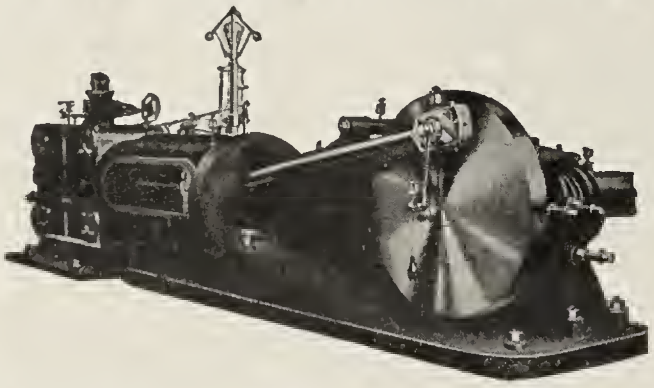

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Fire Resisting Quality of Hollow Tile.

473. *Michigan.—You are undoubtedly familiar with the fact that hollow tile is displacing large quantities of brick for interior walls, and we wish to know if you have any reports in regard to the fire resisting quality of these tile. It occurs to us that on account of the hollow space in these tile or blocks, they might go to pieces when subjected to high heat and the quick cooling effect of water, but such builders and contractors as we have mentioned the matter to, do not seem to be able to give us any definite information.*

We have a report, made by Virgil Marani, inspector of buildings for the city of Cleveland, Ohio, on Denison Hollow Tile, in January, 1911. It reads, in part:

"The enclosure was built with the Denison Tile, laying up a 12¾-inch wall with ¼-inch of plaster (sand and lime) on the inside face. Beds and joints laid up with lime mortar with a little cement.

"The testing enclosure was built of the following outside dimensions: 9′ 6″ x 10′ 3″ x 8′ 9″ high, with a 3-inch coping of concrete on the top.

"At one end an opening was left into which the fuel was introduced; this opening was about 2′ 6″ x 2′ 0″ and closed with sheet iron when the test was conducted. Two pyrometers entered on a vertical center line of one of the sides, one at a point about 18 inches below the top of the concrete coping, and the lower pyrometer about 4′ 8″ from the same point.

"The roof or covering was of No. 26 gauge sheet iron laid on steel rods, spaced 12 inches apart, the ends of which were bedded in about 12 inches of the concrete coping on top of the walls.

"An opening was left in the center of this roof 36 x 36 inches and the edges secured. Provision by tunnel was made to secure effective draft for the fire while the test was being conducted.

"The entire walls were loaded with pig iron at about 4,066 pounds per running or square foot; this iron was laid directly on top of the three-inch concrete coping.

"Observations were taken at short intervals and showed the following results:

Time	Top Pyrometer Degrees F.	Bottom Pyrometer Degrees F.	Difference of Time	Variation of Temp., Top and Bottom Degrees F.
3:19 P. M.	Fire started, opening closed			...
3:23 P. M.	825	425	4 Minutes	400
3:25 P. M.	1175	425	2 Minutes	750
3:26 P. M.	1225	475	1 Minute	750
3:28 P. M.	1350	600	2 Minutes	750
3:29 P. M.	1400	675	1 Minute	725
3:30 P. M.	1425	750	1 Minute	675
3:31 P. M.	1500	775	1 Minute	725
3:33 P. M.	1550	850	2 Minutes	700
3:35 P. M.	1625	900	2 Minutes	725
3:37 P. M.	1625	955	2 Minutes	670
3:39 P. M.	1650	1025	2 Minutes	625
3:40 P. M.	1700	1100	1 Minute	600
3:42 P. M.	1700	1200	2 Minutes	500
3:44 P. M.	1725	1240	2 Minutes	485
3:45 P. M.	1750	1275	1 Minute	475
3:47 P. M.	1760	1325	2 Minutes	435
3:50 P. M.	Top	1475	3 Minutes	...
3:53 P. M.	Pyrometer	1500	3 Minutes	...
3:56 P. M.	Out of	1525	3 Minutes	...
4:02 P. M.	Order	1600	6 Minutes	...

4:03 P. M. Water turned on 15 feet distant and fire quenched. Hose 2½ inches in diameter. Nozzle 1⅛ inches tip.

"The failure of the top pyrometer to record the last four readings did not, in the minds of those present, detract from the efficiency of the test. It was generally conceded that a temperature of more than 2,000 degrees F. had been attained.

"The outside wall surface did not even warm, but remained cool during the entire time of the test, with no warping, settlement or cracking of any kind. Inside common plaster was all burned off, but the inside face of the hollow tile remained true and in no case was any damage evident. After punching a hole completely through the rear wall, where the water came in first contact, the entire tile sections were left entirely undamaged."

"Brick and Clay Record" published an account of a test made in Greenpoint, New York City, July 30th, 1913. This article appeared in the August 15, 1913, issue. The tile used was "Natco" and the results were practically the same as those shown in the Cleveland test.

Hollow tile seems to stand up as well as solid brick, if not better, under the ordinary (or extraordinary, for that matter) conditions of a conflagration, where intense heat is followed by sudden cooling. It is beyond belief that a 12¾-inch solid brick wall would have remained cool on the outside throughout a test in which the inside face was gradually heated, in forty-four minutes, from 400 to 2,000 degrees F.

Dryer Walls Built of Cement.

465. *Illinois.—I am about to construct a new dryer and the plant expert and brick works engineer whom I have engaged advises me to build the walls of my dryer of concrete. This seems to me to be impractical, although he advises me that it is all right, particularly as I have too few cull brick on the yard to be sure that I can build of brick without either buying commons outside, or using first quality brick.*

Even though your dryer walls were built entirely of first quality brick, they would prove cheaper in the long run than concrete, and the "brick works engineer" that advises cement for the purpose betrays a pitiful lack of knowledge in his chosen field. A prominent brick maker, whose experience covers the construction of three plants, was misled into building a 600 ft. dryer with cement walls, through the advice of a plant engineer, with the result that he had to replace these walls with brick within a couple of years after they had been built. The heat in the dryer crumbled the cement and large cracks were followed by holes as big as the head of a barrel. "Brick and Clay Record" will be glad to forward the name of the brickmaker who had to replace his concrete walls with brick, to any one who may be tempted to misuse concrete by using it in the construction of a dryer.

Wants Appliances Used in Ceramic Industry.

476. *Kansas.—I noticed in a copy of an English publication, the advertisements of several concerns making requisites for the ceramic industry, but all of them were located in England. Are there any firms in America that make or sell fine wire mesh cloth used in making sieves, also the nozzles that are used for spraying slips?*

This request has been published in "Brick and Clay Records," Service Bulletin, and mailed to our advertisers. Do any of our readers know where the "requisites" this subscriber desires, may be obtained?

Burning Shale Brick in Clamp Kilns.

474. *Quebec.—Please answer the following question in the next issue of "Brick and Clay Record": Can shale brick be burned in a clamp kiln?*

Ellis Lovejoy, C. E. says "I do not know of any reason why shale brick cannot be burned in a clamp kiln, and, in fact, in general there is no reason why they cannot, because shale brick are being successfully burned in clamp kilns and scove kilns in various parts of this country."

Wants Division of Cost Percentages.

460. *Iowa.—Have you, among your different statistics, the proportion of percentage allowed in different brick plants for the manufacturing and the selling end?*

"Brick and Clay Record" has no such data—will one of our subscribers, who has some system covering this division, communicate with the "Q. and A. Department"?

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Good Site for Clayworking Plant.

470. *Ohio.—I am taking the liberty of writing you in regard to a clay proposition located in West Virginia. The property is located on the B. & O. R. R. and has natural gas on it, for about 12c. a thousand ft. We have found that our clay could make good drain tile, fireproofing and flower pots. What we would like to know is whether or not there would be a good demand in the locality named, and if there are many plants located near our property. Any information that you could give us would be appreciated and your valuable advice may help us to make a success of this business.*

We are of the opinion that a plant for the manufacture of hollow ware would be successful, as it is within easy rail distance of a number of large consuming centres and is not subject to any particularly severe competition through plants situated between it and the markets you would serve.

Pittsburgh would be one of the markets which it would naturally look to for fireproofing. At the present time Pittsburgh does not make a great deal of this material on account of certain city and state ordinances which are discriminating, but there is every reason to believe that within the next two years the laws will be so altered as to permit the use of clay tile in all kinds of buildings where fireproof construction is demanded.

In Wheeling, W. Va., there is a splendid growing market and the same may be said of small cities within a radius of 150 miles.

We have no statistics which would enable us to advise you on the subject of drain tile, but it is our experience that nearly every plant which starts making this material builds up a strong clientele in the district immediately surrounding it and that this is a trade which it can control many years. This trade is built up by the distribution of printed matter and by personal calls made upon the farmers who are located within easy rail distance or within a wagon haul of plant. Farm drainage is a subject which every farmer will listen to and every farmer is a potential user of drain tile.

We would not advise the manufacture of flower pots as these are made very cheaply in large quantities by large plants and unless you intended putting in a costly equipment you would not be able to compete in price with the plants that had been established for many years.

Our freight traffic counselor advises as follows:—"At the present time there are no specific commodity rates from this point on clay products of any nature and the very best basis that our subscriber would have would be the class rates. However, it is the writer's opinion that this is due to the fact that request for commodity rates has never been made and believe that our subscriber could get a very good idea of what he might expect in the way of commodity rates if he would communicate with Division Freight Agent F. Fowler of the B. & O. R. R. at Parkersburg, W. Va. The traffic policy of the B. & O. R. R. is very good and the writer is sure that Mr. Fowler will make every possible inducement, as far as rate conditions are concerned, to make the proposition of locating attractive.

Would suggest that our subscriber receive definite position of the B. & O. R. R. as far as the rates are concerned, before locating at ———."

Thinks He Has Kieselguhr.

445. *New York.—On a piece of property that I have, sand like the sample enclosed, is found in large quantities. It analyses 99¼ per cent silica, ¾ of one per cent alumina. Is this material what they call kieselguhr? Is it used to any extent in brickmaking, and do they (the brickmakers) buy*

sand of this kind? If so, what is the average price paid for it?

The sample is of a cream white color and about 100 mesh. Will our readers answer the one or all of the questions asked?

Statistics Wanted.

468. *Ontario.—Could you supply us with any statistics showing the number of drain tile, sand lime and fire brick plants in the United States?*

A list of clay products manufacturers recently compiled shows about 1,850 manufacturers of "clay tile" which includes hollow building block, encaustic tile, floor and wall tile, etc. The value of the drain tile output in the United States, was, in 1912 (Government Report) $8,010,250, and of "tile" (not drain) $5,809,495. The U. S. Geological Survey Report on the Production of Sand Lime Brick in the United States during 1913 (Jefferson Middleton) gives the number of active firms reporting as 68, with a production of 178,352,000 common and 11,307,000 face brick as an output, the total value of which was $1,238,325. There are about 650 concerns making fire brick in this country, and the value of the output, in 1912 (Government Report) was $17,877,629.

Machinery to Make Cement Brick.

472. *Virginia.—Please send me a list of manufacturers of machinery to make cement brick.*

We are unable to comply with the above request, as we have no list that covers manufacturers of cement-brick making machinery. Our correspondent will do well, however, if he goes a little slow on the purchase of machinery of this character,—at least slow enough to make a personal investigation of several plants making brick with cement, and that have been running long enough to have passed the experimental stage. The investigation should go as far as the men whose money has been put into these plants, and they should be asked if the investment has given satisfactory returns. Do not take the statement made by the man who wants to sell the machine—go and see the people who have bought them in the past. They know what cement brick has done for them—or to them.

Wants Data for a Brick Lecture.

458. *Missouri—May I ask you a favor? I need all the data I can get in the preparation of a lecture on "Paving Streets and Roads." I would also like to secure a few lantern slides to relieve the "dry as dust" effect and add to the popular interest. We must convince the home owner and the farmer and must gain the attention and arouse the interest of every man who has a vote on the road or street paving question. Please let me know where it would be possible to secure the lantern slides and also tell me whether you could furnish some of the pictures that have appeared in "Brick and Clay Record" or some of the pictures from which the cuts were made.*

With a few exceptions, all cuts that have appeared in "Brick and Clay Record" are destroyed one year after they were printed. Original photos, particularly of such subjects as roads and streets, are preserved indefinitely, and, in many cases, the original negatives are also held. If our correspondent will let us know what pictures he wants, we will do our best to supply him with them. If our correspondent will send us a rough draft of his lecture, we will be glad to suggest the illustrations, and to supply what he requires. In the meantime, we have sent reprints of some of the articles that have appeared in this journal during the past year, illustrating good paving—and bad.

"A Little Wonder"—

That's what one clay manufacturer says about his MARION Revolving Shovel. Why does he say this? Because the shovel is giving him service—*Constant Service*—profit—*Greater Profit.* That is what was wanted—and isn't that what *you* want, Mr Clay Manufacturer? We can help you—a shovel for every requirement. Write for Catalog 92; it tells how.

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Wants Names of Hudson River Brickmakers.

464. *New York.—If you could furnish me with the names and addresses of the manufacturers of common brick in the Hudson River district, it would confer a great favor upon a subscriber who has a perfectly legitimate proposition to make them.*

Answering "by the card" and giving only the names of common brick makers whose yards are on the Hudson river or in the section that uses the Hudson for transportation purposes, we believe this list is complete: Albany, N. Y., Albany Clay Products Company, Alfred Hunter & Son, J. C. Moore & Babcock, Newton Fire Brick Company and Edward J. Street; Amsterdam, Henry C. Grieme Company; Arlington, N. Y., Flaghler & Allen; Athens, N. Y., W. W. Rider; Catskill, N Y., P. Golden & Son, G. Washburn & Son, Tidewater Paving Brick Co.; Chelsea, N. Y., J. B. Watrous; Coeymans, N. Y., Corwin & McCollough, Powell & Minnock, Sutton & Suderly Brick Co., Ziegler & Ziegler; Cohoes, N. Y., Aetna Brick Company, Cary Brick Company, Murray & Riberdy; Crescent, N. Y., A. C. Newton; Croton Point, N. Y., W. A. Underhill Brick Company; Dutchess Junction, N. Y., Aldridge Brick Company, Brockway Bros. Company, Hammond & Freeman, Nicholson Brothers, Homer Ramsdell; East Kingston, N. Y., Bringham Bros., Hendricks Brick Company, Lynch Bros. Company, T. H. & A. H. Smith, Staples Brick Company, U. F. & J. T. Washburn; Glasco, N. Y., Alpha Brick & Holding Company, Empire Brick & Supply Company, Robert Lent, J. C. Maginnis, Washburn Bros. Company; Grassy Point, N. Y., Brophy Bros., Lynch Bros., Morrissey & Brophy, Morrissey & Company, Riley Brick Company., Margaret Riley, Washburn & Fowler; Haverstraw, N. Y., B. J. Allison & Company, Allison & Wood, George, Archer, Bessie Bennett, DeNoyelles & Company, Excelsior Brick Company, Everett Fowler, Denton Fowler, Jr., & Company, Garber Brick Works, Lynch & O'Brien, Terrence Maguire Estate, Mary Malley, Peck Brick Company, E. N. Renn & Company, Thomas Shenkey & Son, Snedecker Bros., Thomas Tanney, Tanney & Coyne, Wood & Allison; Hudson, N. Y., Arkison Bros.; Kingston, N. Y., Frederick Brick Company, Philip Goldrich, Hanrahan Brick & Ice Company, Hutton Company, Christian Schlede, C. A. Schultz Estate, Staples Brick Company, Terry Bros.; Newburgh, N. Y., Hugh Davidson, William Lahey Estate, Jerome Walsh; Newton Hook, N. Y., Cary Brick Company; Ossinning, N. Y., Ossinning Pressed Brick & Stone Company; Peekskill, N. Y., S. D. Horton; Saugerties, N. Y., Ulster Brick Company; Schodack Landing, N. Y., Hannah P. Brosseau; Troy, N. Y., Cary Brick Company, Robert Glass & Company, Ostrander Fire Brick Company, Mrs. Annie Painton, Troy Brick Company, Verplanck, N. Y., Bonner Brick Company, Gornley & Cahill, Philip O'Brien; Watervliet, N. Y., Henry E. Retallick.

Pottery

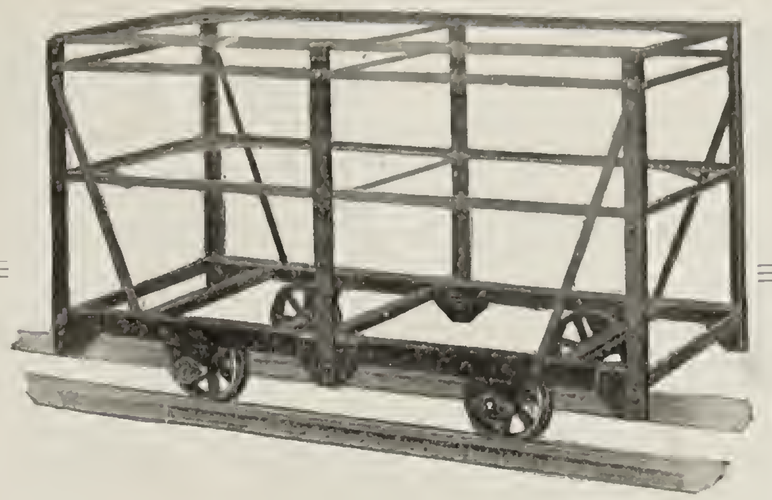
It has been admitted for many months that general business conditions in the sanitary pottery trade have been anything but the best. For a year or more, certain western interests have been working on ideas which have to do with the sanitary pottery business, and should these plans ultimately prove successful, the general sanitary potteries will have less to do than they have had in the past. All of these conditions rest on the successful manufacturing of sanitary ware by new processes. Two separate interests—one in Ohio and another in Pennsylvania—are concerned in these new ideas. The Ohio interest has perfected a plan to manufacture water tanks by mechanical pressing. These tanks are now made by hand, and it is asserted by these interests that only a few tanks can be made by hand daily, while by pressing, hundreds can be made in the same time. The plans of this particular interest have gone so far that an option has been taken on an eastern pottery, where proper machinery will be installed, and the manufacturing of these tanks will start before next Fall. In the manufacturing of closets and wash-downs, a Pennsylvania interest has developed a process where dozens of these items can be made in a day where only a few are now made by hand. In this instance also, parties interested in the manufacturing of these lines by their patented process are looking for an inactive pottery, which they would purchase outright. Should time prove that the ideas of these different interests are correct, many men now employed in the hand pressed sanitary potteries will have to seek employment elsewhere. Goods made by these new ideas can be sold under the present prices, and still the margin of profit be larger than is now possible. There is every reason for believing that, within the next six months, both interests will be actively engaged in the manufacturing of sanitary ware by these new processes.

Rapid progress is being made upon the erection of the new addition to the plant of the Guernsey Earthenware Company, at Cambridge, Ohio, which, when completed, will double the capacity of the plant. Five new kilns have been topped out, and work on the buildings will start at once. This firm is now confining its efforts to the manufacturing of cooking ware only.

With the formation of the Brunt Tile Company, at Columbus, Ohio, a few days ago, the last details were completed by George F. Brunt, of East Liverpool, Ohio, toward the purchase of the Chaseland pottery at Columbus. Wall and floor tile will be made in this plant. The Brunt electric porcelain plant at East Liverpool will be dismantled, so it is said, as the business of the plant is to be transferred to the American porcelain factories at Parkersburg, W. Va. This will only leave two electric plants in East Liverpool, the R. Thomas & Sons and the Davidson-Stevenson Porcelain Company. There were formerly six plants operating in that district in this particular line.

According to information that has been received by domestic pottery manufacturers throughout the country, the production of domestic wares for the past fiscal year was the heaviest ever known in the trade. Within a few weeks, detailed statements will be available, and these will also show that the production of the western plants will be far in advance of that of previous years. Not only has the production of semi-porcelain ware shown an increase, but the sale of vitreous hotel china lines has been greater than heretofore noted. These reports will show that West Virginia has made rapid strides in the production of domestic wares, for, with the establishment of over 30 kilns in the Pan Handle state during the past twelve months, a production of nearly $1,000,000 has been added to previous totals.

Sanitary ware will be shown on the decline, so far as production is concerned. In fact, the past fiscal year has been one of the worst the trade has experienced. In this particular line, general business conditions are not nearly as good as they are in the domestic branch of the trade, due to the fact that building operations have been slow, and the demand for sanitary lines from jobbing interests quite below normal. It is probable that the trade will show some new life during the next few months, judging from present indications.



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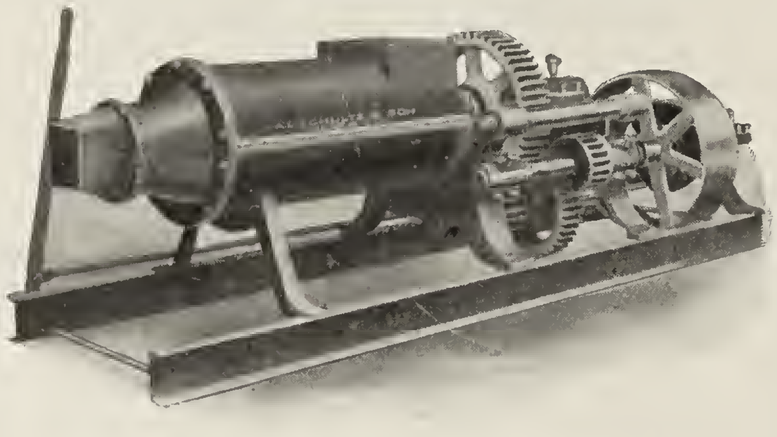

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The Consolidated Manufacturers Company, of Chester, W. Va., which is erecting a seven-kiln plant at Grafton, W. Va., is of the opinion that this pottery will be the "last word" in general pottery plant construction. It appears that whenever a new plant is built, a number of improvements are made in plans over those of previous potteries. In this instance, the Edwin M. Knowles China Company, at Newell, W. Va., was supposed to have been the "limit," but the architects of the Consolidated improvement state that still more modern ideas are being used than were incorporated in the Grafton pottery.

Whether or not the referendum vote, which now governs the action of the National Brotherhood of Operative Potters, will continue another year, will be determined at the annual convention which convenes at Atlantic City, N. J., early in July. Some locals are of the opinion that the vote is too costly, and that it should be abolished. Resolutions with this end in view have been prepared, and will be referred to the committee on resolutions at the opening of the convention.

While wind damaged the plant of the Kittanning (Pa.) pottery plant several weeks ago, lightning struck the plant of the Crooksville (Ohio) China Company and did some slight damage. No workers were injured at the latter plant, while one was killed and a dozen injured at Kittanning. The Colonial Trust Company, of Pittsburgh, Pa., which controls the Kittanning plant, has awarded the contract for the repairing of the damaged buildings, but it will take probably two months or longer to complete this task. In the meantime, no work is being done at Kittanning. Operations at Crooksville are continuing without interruption, however.

The demand for vitreous hotel and dinner china, such as is now being made in this country, is such that every plant in New York state, Western Pennsylvania, and in West Virginia is working to the limit. There is not an idle shop, and orders are such that operations are insured for the balance of the year.

Statistics just announced show that there are in the United States 153 potteries, making domestic ware, toilet ware, art pottery, stone ware, cooking ware, fancy goods and clay specialties. The bulk of these plants are located in the west, or west of the Allegheny mountains. The various lines made by these different plants have been classified as follows: General ware, 53; art pottery, 38; fancy goods, 19; general specialties, 13; cooking ware, 28; kitchen specialties, 19; hotel ware, 25; vitrified china, 7; semi-vitreous, 7; semi-granite, 1; "C C" or common china, 5; Yellow and Rockingham ware, 4; white granite, 14; toilet ware, 32; semi-porcelain, 29; banquet and dinner service, 19; jardiniers and pedestals, 26; flower pots and ferneries, 22. It is also estimated that there are employed by these various plants upwards of 10,000 people but many of them are not in the skilled labor class which is employed in the general ware potteries, and, in some of the stoneware plants, a considerable number of non-English speaking labor is employed. The list also brings out the fact that every line of pottery or china bisque work, that is manufactured in foreign countries, is produced in American-owned potteries and ceramic plants. This list of plants is being increased annually, both in kiln capacity and in the number of workers engaged.

It has been pointed out that the value of American-produced pottery for the current fiscal year, as will be shown by later Government reports, will be the greatest ever reached. That the $18,000,000 mark will be reached or nearly so, is admitted by the domestic manufacturers. For the last few years these valuations have been showing marked increases, and, as 1913 was admitted to be a most active one in this trade, there is reason for believing that all previous records will be surpassed.

The various resolutions which the convention at Atlantic City next July will consider have been framed in many of the locals, and these will be forwarded the trade in printed form at an early date. It is hinted that about 100 resolutions will be before the "committee on resolutions" this year.

There will be some resolutions presented which refer to the sanitary branch of the trade, while others will refer to the internal affairs of the organization. No resolutions will be submitted this year which will have to do with the general ware branch of the business, as such legislation was introduced and adjusted at the 1913 convention. These agreements will remain in force until October, 1915.

The Ford City plant of the Pennsylvania China Company, which, a few years ago, was under the management of Charles Howell Cook of Trenton, N. J., is expected to be leased before long by certain Pittsburgh, Pa., interests, and converted into an electric porcelain plant. Possibility exists that sanitary ware may also be made in a part of this pottery, which has a capacity of seventeen kilns. Several conferences have been held with the owners of the property, but no agreements to take it over have been entered into.

The former Goodwin Pottery plant at East Liverpool, Ohio, is now actively engaged in the manufacture of electric porcelain goods. Since plants controlled by the General Electric Porcelain Company were concentrated at Parkersburg, W. Va., the Goodwin plant will occupy an almost exclusive position in this line of trade in the upper Ohio Valley.

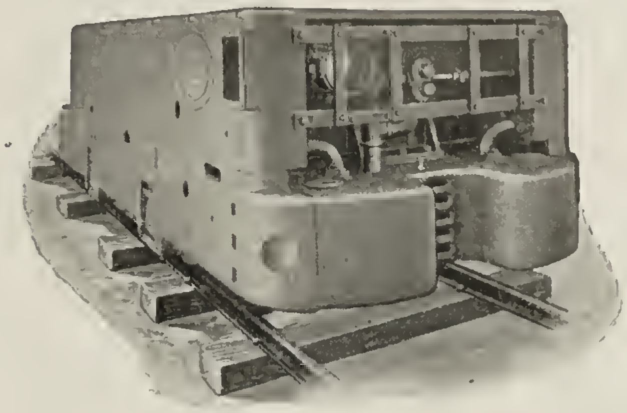
Since it has become known that E. L. Henderson, president of the Carrollton Pottery Company, of Carrollton, Ohio, has bought the controlling interest in that business from A. E. Albright, his lifelong business associate, it now is stated that Mr. Albright, with his brother, M. F. Albright, will form a new pottery company at an early date and erect another pottery in Carrollton. Henderson is reported to have paid $83,000 for the interest held by Mr. Albright. The definite plans of the Albright interests will be made known within the next ten days.

The fire at the Carrollton pottery the night of June 5, was not as extensive as first reported. The clay shops and kiln departments remain intact, and work started there June 8. The offices and packing departments were gutted, however, the losses sustained being amply covered by insurance.

The first car of machinery for the new McNicol China Company, which is building a plant at Grafton, W. Va., arrived there a few days ago, having been shipped two months ahead of time. At Grafton, it is reported that the three plants of the McNicol interests in East Liverpool and Wellsville, Ohio, are to be transferred to Grafton. Officials of the company, however, deny this statement, by saying that the Grafton concern is a distinct organization, and is not affiliated with operations at East Liverpool. Grading for this new plant has been started. The annual pay roll will approximate $300,000, it is reported.

The American Water Filter and Pottery Company has been formed at Cleveland, Ohio, with a capital stock of

Gasoline Motors



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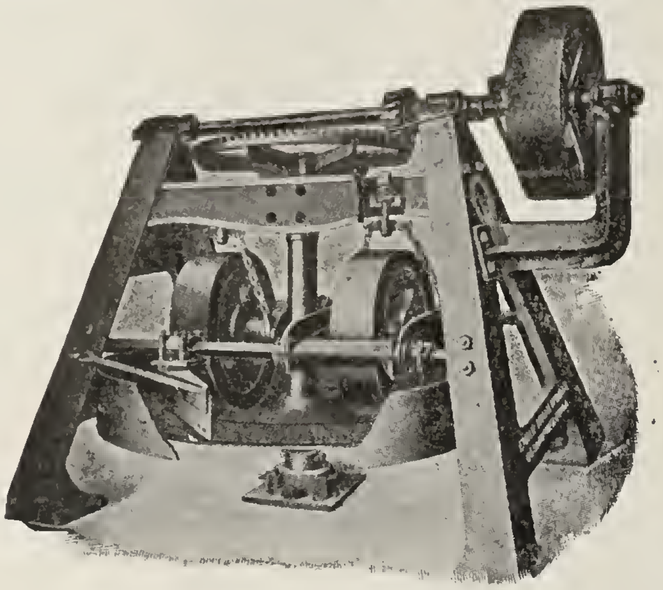

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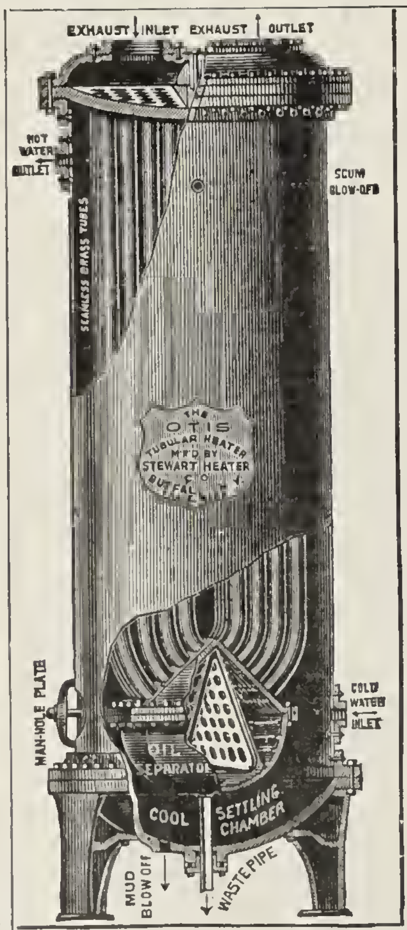

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$5,000 by V. H. McConnell. In the past the majority of water filters were made in the Trenton district, and this will be the first plant of the kind to be established in the northeastern Ohio territory.

A machine for "batting-out" has been invented by Fred Haney, of East Liverpool, Ohio, which is said to be designed for the purpose of doing away with small boy help in the clay shops of the potteries. Western jiggermen have been outbidding one another for some years for the services of the help of each other, when vacancies develop, until today the boys receive anywhere from $2 to $3 a day. In the old days, the wages were from 50 cents a day up. A patent has been secured by Haney upon his new device, and it will be given a thorough tryout soon.

A machine for leveling "bats" in the clay shops, an English invention, has been installed in the new plant of the Edwin M. Knowles China Company, at Newell, W. Va. This is the first machine of the kind operated in an American pottery, as heretofore the "bats" were leveled by hand.

W. Edward Wells, secretary of the Homer Laughlin China Company, and also chairman of the Committee on Labor of the United States Potters' Association, will not be a candidate for Congress or other political office —at least not this year. "I can do better work by remaining at home," Mr. Wells is reported to have said, when the question was put up to him. William Hindle, a former pottery worker in the eastern Ohio district, is contemplating the erection of a pottery plant at Colorado Springs, Colo. There is one pottery plant in that state, and clays found in some sections there are said to be well adapted to the making of certain grades of pottery. Hindle was formerly located in Dixonville, at East Liverpool, Ohio.

Columbus, Ohio, Big Face Brick Center.

Columbus is rated as being the largest high grade face brick manufacturing center of any city in the United States. Columbus also has the reputation throughout this country and Canada for producing the finest face brick in the world. While it is a fact that none of the plants of these brick companies are located within the city, nevertheless it is true that Columbus is the home of the owners of these factories.

The general offices of the Claycraft Brick Company, Ironclay Brick Company, the Columbus Brick & Terra Cotta Company, the Hocking Valley Products Company, the Athens Brick Company, and the Shawnee Flash Brick Company are all located in Columbus. These companies maintain large suites of offices and have beautiful exhibitions for displaying various kinds of brick. A large staff of traveling men is maintained and wherever a large building is to be erected, may be found representatives of the Columbus brick companies with their samples and their quotations.

Columbus being the center of the face brick making industry, is naturally a well built city. In fact, Columbus has more brick residences in proportion to its population than any other city in the United States. Brick may be had in Columbus at a price so low that this material is available to all who expect to build. The man who proposes to erect a $3,000 home of modest pretensions may have his walls of the finest brick just the same as the millionaire who erects a magnificent mansion.

Columbus also has several common brick manufacturing plants which turn out millions of soft brick each year.

The Semi-Monthly Trade Review

GENERAL improvement marks the state of business for the country as a whole. Sentiment hinges on the belief that the change for the better is slowly, but nevertheless surely, introducing itself in many ways. In building construction, for instance, ninety cities reported to Bradstreets in May show a gain over those of April at identical cities, but a decrease from May a year ago, with a majority of the cities comparing with the like period a year ago, showing a decline in value. The expenditures for May of this year aggregate $54,801,577 as against $51,924,194 in April and $57,535,802 in May, 1913. This represents a gain of 5.5 percent over April, but a decrease of 7.9 percent from May last year with fifty-two out of ninety cities marking decreases from the latter month.

While the foregoing shows a spotty condition in building construction over a fair area of the country, it represents fairly well the general character of business everywhere. Nowhere is there to be found positive assurances that the turn for the better has come, but such reports as these and advices of an improved buying movement in pig iron, co-operation of bankers in putting into operation the new currency system and a feeling of optimism where formerly only pessimism reigned, all point the way the new commercial era may be expected to dawn.

May failures were 3.6 percent. less than they were last month. Bank clearings, however, are still light, the totals for May being $13,035,947,561, a drop of 11.7 percent. from April, but it must be recalled that bank clearings show only current cash transactions such as those covering transfer of stocks and bonds. They indicate, too, the rise and fall of payrolls. They represent records of what has occurred, not what may be expected. They give no hint as to the volume of business that has gone ahead on extended credit. The amounts thus represented, but not shown, will appear in the bank clearing statements of the Fall and early Winter when the monthly reports will be larger, and, because the amounts will then be more comparable with those of the year preceding, if not of the last record year, everybody will say that business really is picking up and because figures can be shown to prove it, a larger proportion of American business men will be led to believe that there must be something in this optimism and straightway proceed to loosen up on orders the lack of which now makes rainbow pointing as difficult as lifting the American yachting cup.

There is no doubt that broadgauge business men are extending credits and granting concessions to bring about

The GANDY BELT IS WATER PROOF

EVERY Gandy Belt is saturated with a special compound of oils that renders it impervious to water, heat or steam.

One of our customers writes us that during the night the water in their wheel pit often rises enough to cover the lower portion of their 16 inch Gandy Belt, but that the belt continues unaffected by these adverse conditions, though it has been transmitting 70 H. P. for several years.

Gandy Belting costs but one-third as much as leather, much less than rubber, but it does the work equally well or better, especially under unfavorable conditions.

The severe conditions of the brick field are rendered less difficult by the use of Gandy Belting.

If you're not familiar with Gandy service send today for free sample, and testimony of a few of the thousands of enthusiastic Gandy users.

The Gandy Belting Co.
732 W. Pratt St.
Baltimore, Md.

New York Office
36 Warren St.

"Be a Booster"

"The Truth About the Wayne County Concrete Roads"

—By Paul E. Green, M. E.

If you have some new streets or country highways contemplated in YOUR city or community, and there is a likelihood that concrete will be considered as a paving material, stop this waste of the people's money by boosting for vitrified paving block, no matter if you do not make pavers.

You are a clayworker and should work for burned clay no matter what form it may be.

Clayworkers, Use this Book to Fight Concrete

Paul E. Green is a member of the American Engineering Society and was employed by certain taxpayers of Highland Park, Ill., to investigate the famous Wayne County roads before they decided on concrete for proposed street improvements.

Mr. Green made an exhaustive report showing actual conditions and giving full data on these "perfect" concrete roads. His report was published in full in the Oct. 7, 1913, issue of "Brick and Clay Record." We have reprinted the report in pamphlet form for popular distribution.

Show a Co-operative Spirit in Your Locality

See that every taxpayer gets a copy of this pamphlet. We have printed them in a convenient and attractive form for distribution and offer them in any quantity at $20 per 1000, which barely covers the cost of printing. Smaller lots at $2.50 per 100. Sample copies free. Send for a copy if you missed the article in the October 7 issue of this magazine.

Brick and Clay Record

445 Plymouth Court, Chicago

this change so devoutedly to be wished. June opened with a firmer and more continuous demand for steel and pig iron, yet prices of both commodities are still being maintained at the low levels existing previous to the improvement. The demand for common brick in New York has increased wonderfully, yet the price has not shifted materially from the $5.62½ mean level ruling during April. Although dealers in the east have been more active in the market for Portland cement, the agents are still shading the $1.58 quotation, and so on down the line. In the sixteen leading commodities entering building construction in New York, a gain of only .811 is shown in prices over those in April when the building commodity index number worked out to 3.515. On June 1, 1913, this index figure was 5.001, which, when compared with the index figure for the first of the current month, shows that the state of the building materials market is only .675 below that of last June which was a month showing an increase in basic building material requirements of 5 percent. above a ten year normal.

These index figures cover the metropolitan district which has been the heaviest drawback to the country's 1914 building movement. To prove that this retardant factor in the nation's building statistics has turned over for the better, it might be stated that for the four weeks prior to May 30, 1,262 new building plans were filed as compared with 1,127 for the same period prior to April 30 with a value for May of $17,254,027 as compared with $10,263,209 in April. Chicago, the next most important city in building expenditures, showed a decrease of 33 percent. but this is expected to be materially changed during the next thirty days since the great strike that has paralyzed construction there for a long time has been adjusted. Philadelphia shows a gain of 50 percent.; Cleveland, 12 percent.; Indianapolis, 42 percent.; Milwaukee, 21 percent.; Rochester, 24 percent; St. Paul, 40 percent., and Minneapolis, 150 percent. Buffalo fell off 28 percent.; Newark, N. J., 52 percent.; Oakland, Cal., 71 percent.; Pittsburgh, 37 percent.; San Francisco, 37 percent., and Spokane, 91 percent. Conditions of building throughout the country are not so bad when a decrease of only 10.2 percent. is shown for the first five months of the current year, in which total expenditures ran up to $320,152,974 as against $356,630,317 in the same period last year.

A word of explanation is due regarding San Francisco's decrease in building plan filings. The total amount of building contracts entered into in that city since the fire is $244,972,562. Buildings erected within two years of the fire, when no contract price was named by the builder, but when all the structures were built on a percentage basis, cost 25 to 30 per cent. more, on the average, than the original recorded contract price, and, it is therefore estimated, that the total amount expended for building operations since the fire is not less than $301,500,000. In 1905, the plan filings ran up to $20,111,861, in the following year they jumped to $39,254,467, and reached their climax in 1907 when they went to $50,499,499. Since then the decrease has been gradual until it can be said that the building operations of the past three years are practically down to the normal requirements of a large and growing city. In 1913, the building operations in that city ran up to $32,797,259 while 1905, the year before the fire, they were a little over $10,000,000 less. The city is now in process of assimilating its rentable space which, it is expected, will barely be sufficient to accommodate the great throngs that will visit the city next year.

There has been little change in the construction outlook in the country as a whole during the last fortnight, save for expressions of optimism from persons well informed on conditions. Nebraska, which is largely dependent for its building activity on the condition of the crops, looks at the situation in this light, according to I. J. Weatherford, of the Nebraska Materials Company, of Lincoln:

"We really expect the fall business to be the heaviest in the history of the state. There is plenty of money in this country and no excuse for people not building, but this is a corn state and it makes no difference how much wheat, alfalfa, etc., a farmer raises here, if his corn is no good there has been a failure. Our people make their living out of wheat and alfalfa, etc., and their spending money comes out of corn. So far the corn crop promises to be a good one and that is why we are looking forward to a good building season in the last quarter."

In Seattle, there is a large quantity of public work moving, requiring more or less brick and clay products. This is significant and indicates, if anything at all, that the city is laying plans to extend its housing accommodations to take care of the large number of people who are moving into that part of the country as permanent residents. There were 27 bids received for the inter-county river improvement when E. M. Griswold, the engineer of Douglas county, opened bids recently. The work includes schools, public, business and government buildings, sewers, irrigation, reclamation work at Astoria, and street paving. This city, by the way, shows a gain in building plans filed for May over April and for April over March.

Brick manufacturing throughout the country seems to be along conservative lines. In the Hudson and Raritan districts in the east few plants are operating more than 60 percent. of capacity. The first of the 1914 brick came into market at New York this week and they were quickly taken at prices within the range that has ruled for several weeks, $5.60 to $5.87½ a thousand. There is still a large holdover from last year's output in the sheds and it is the intention of the manufacturers to clear the sheds as much as possible of the old brick before opening up on their 1914 production.

Generally speaking the business uplift movement is conspicuous in some places and inconspicuous in others. On the whole, however, there is an optimistic tone, especially as it relates to basic building commodities, even though prices are low and credits extended.

In the Wake of the News

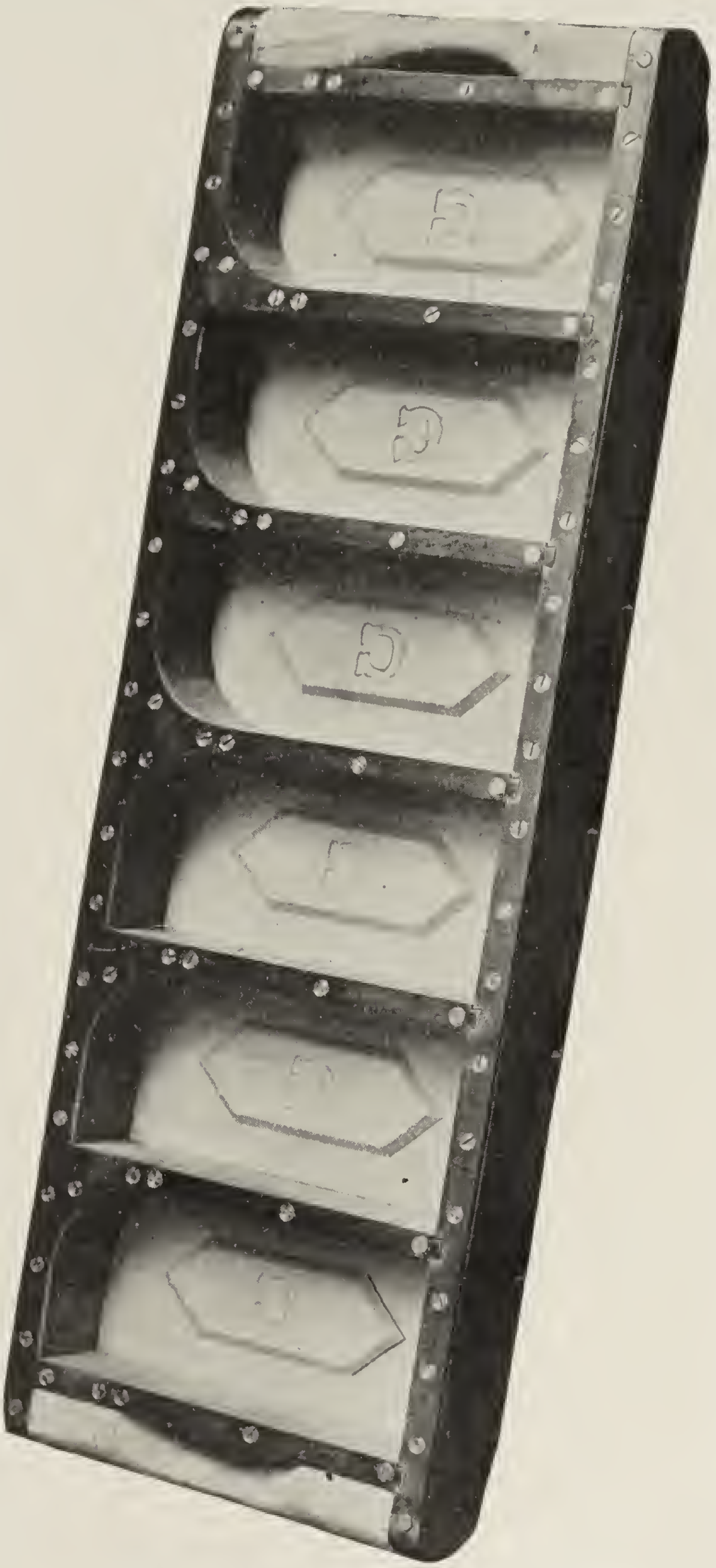
Being Brief Mention of the Host
of Interesting Things That Have
Happened During the Past Fortnight

ALABAMA

The Tuscaloose (Ala.) "Times-Gazette" says that a Mr. Ballard, of Jackson, Ala., said to have been a practical brickmaker for twelve years, has been in Tuscaloosa investigating the possibilities of putting up a brick plant at that place.

Machine and Hand Brick Moulds

of Every Description



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Chicago, Ill.

Gentlemen:—We are interested in the possible use of advertising space in your Reciprocal Clay Products Advertising Section appearing on pages 1435-1446 of this issue of "Brick and Clay Record" and would like to have you tell us, without obligation on our part, the cost of an 1/8 page card therein.

Yours very truly,

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Name

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City

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State

The Brick Selling Company, of Birmingham, Ala., has inaugurated a street car advertising campaign, and using very unique copy. The one that is about to run shows a picture of part of a brick house, with an open window, upon which green "blinds" are so arranged that they swing open and shut with the motion of the car.

Orders for approximately 13,300,000 paving prick have been received by the Copeland-Inglis Brick Company, Birmingham, Ala., the greater part of which will be laid in Orange and Hernando Counties, Florida, forming a part of the Jacksonville to Tampa highway. These orders, it is stated, will keep this firm busy for the rest of the year.

A large deposit of Fuller's earth has been uncovered on the property of the Ladd Fire Brick Company at Fort Payne, Ala. It is claimed that the earth from this deposit has better bleaching qualities than the imported material and a competent engineer has estimated that there is enough of it on the one hundred acre tract owned by the Ladd Fire Brick Company, to last for 75 years, the deposit being more than 70 ft. thick.

Thomas Norris, of Gadsden, Ala., who claims to have discovered a process whereby he can make a pure silica brick, is conducting experiments that include the manufacture of a sufficient quantity to line a blast furnace and so test out, under commercial conditions, the relative merits of this brick and of the ordinary silica brick, which is made by mixing silica and clay. The inventor claims that pure silica has greater endurance than the mixed brick and that the cost of manufacture is not very much greater. Prominent Gadsden men are aiding Mr. Norris financially in the conduct of his experiments.

ALBERTA

James A. Close, of Woodstock, Ont., is building a plant at Lethbridge, Alta., for the manufacture of brick, hollow block and drain tile. Sixteen acres have been purchased from the C. P. R. for the plant site.

ARIZONA

Robert Keating, the brick manufacturer of Prescott, Ariz., has his operations well under way for the season, and has just started the fire in a kiln of over 400,000 brick.

CALIFORNIA

The property of the Houze Brick Company, Vallejo, Cal., was recently sold to Christian Hoffman of Santa Cruz for $52,000.

The City of Berkeley, Cal., will soon begin work on the construction of tributary sewers at a cost of about $160,000.

C. E. Davis & Son, of San Francisco, have been awarded a $13,000 brick contract on Fire Engine House No. 13 in this city.

The Los Angeles (Cal.) Press Brick Company has in preparation a booklet on enamel brick, which, it is said, will be a distinct addition to trade literature in the brick line.

The San Francisco Board of Public Works has decided to ask for bids for the proposed new Baker's Beach outlet sewer, the construction of which will cost in the neighborhood of $20,000.

The city of Lodi, Cal., is in the market for three thousand feet of sewer pipe of various sizes as well as for brick for the construction of man holes, catch basins, etc.

Gladding, McBean & Company, of San Francisco and Lincoln, Cal., have secured contracts to supply polychrome terra cotta for the new Haas Building in Los Angeles and for the new postoffice building in Pasadena.

The Universal Fireproofing Company has been incorporated in Los Angeles, Cal., with a capital stock of $1,000,000. Directors are E. L. Kornfield, J. L. Mallery, C. H. Lehman, T. H. Beecher and George Hodel.

The Pacific Porcelain Ware Company, with works at Richmond, Cal., and offices in San Francisco, is now getting out a new catalogue of its wares. The porcelain ware department has now been in operation three years and the enameled ware department about one year.

The Carquinez Brick & Tile Company, with works at Eckley, Cal., and offices in San Francisco, will begin operations for the season early in June. The works will be under the management of J. B. Phillips, and will turn out Denison blocks.

The O'Byrne-Sullivan hollow tile factory, at Calipatria, Cal., will be in operation very shortly, according to Mr. O'Byrne. Several carloads of material for the tile are now on hand and it is expected to have the finished product on the market within a very short time after the plant has been placed in operation.

A three-story pipe drying shed has just been erected and equipped by the California Pottery Company of Oakland, Cal., and other enlargements are being planned. The company reports a good steady business with points about San Francisco Bay. The largest order of recent weeks is for 1,660 feet of 30-inch sewer pipe for the city of Richmond, Cal., the filling of which has just been completed.

DISTRICT OF COLUMBIA

The Bureau of Foreign and Domestic Commerce, at Washington, D. C., will give the name of a large ceramic-tile manufacturer in a European city, who wishes to communicate with American manufacturers of ceramic-tile making machinery, if written to, and given the file number, which is 12957.

The Bureau of Supplies and Accounts, Navy Department, Washington, D. C., is now receiving bids for sewer pipe, red building brick, red lump fire clay, silica clay and broken limestone. Those interested in these lines should address the department as above noted, for the different schedules.

FLORIDA

M. G. Murphy, of Glendale, Fla., is interested in clayworking machinery, it being his intention to build a plant.

HONOLULU

Bids calling for about one and one-half million brick for the United States Army Barracks at Honolulu, T. H., will, be opened early next month. Several San Francisco brick makers are preparing to submit bids.

ILLINOIS

The plant of the Shelbina Brick & Tile Company, about three-fourths of a mile north of Quincy, Ill., was totally destroyed by fire April 6. J. Raby, C. C. Martin, and C. B. Baughton, all of Shelbina, Ill., are interested in the company.

The Danville (Ill.) Refractories Company, chartered in March with $300,000 capitalization, of which 40 per cent was paid in, will begin the erection of a new brick plant ten miles northeast of Attica, Ind., some time this Spring. The placing of $25,000 bonds, has been guaranteed by the

The
Gerlock Iron
Dumping Table

Reduces green Brick Loss.

Increases Output.

Hundreds in use.
Satisfaction guaranteed.

Descriptive circular and prices furnished on request.

H. W. GERLOCK
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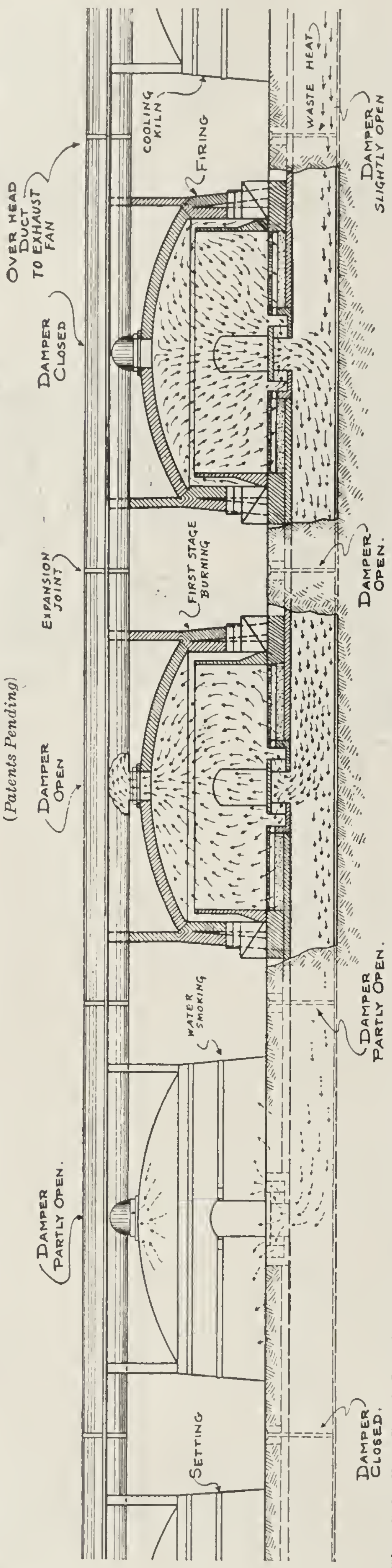

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(Patents Pending)

The Schaffer Semi-Continuous Kiln System consists of an overhead duct and an underground tunnel arranged in such a manner as to make the operation of the round down draft kilns continuous.

It gives the same fuel saving as the regular continuous kiln, but is much more simple to operate.

It produces a much higher class ware than is produced in either the continuous or periodic kilns.

SEECO SYSTEMS applied to your round down draft kilns will save you $1,000. per year on each kiln by taking your heated gases to the next kiln ahead, instead of out to the stack.

This is only one point of advantage.

There are many others, if you will ask us to explain.

Seeco Systems Secure Success in Old Plants as well as new.

THE SCHAFFER ENGINEERING & EQUIPMENT CO. (Incorporated), TIFFIN, OHIO

Danville Industrial Club and C. J. Crawford, of Danville, Ill., heads the company. The equipment required includes a crusher plant for the flint deposit which the company owns.

INDIANA

The Liberal Stone and Brick Company, of Anderson, Ind., has been incorporated by B. F. Lambert, John T. Sears and Arthur H. Jones. The capital stock is $500,000.

The Chicago Sewer Pipe Company, of Brazil, Ind., has been incorporated for $50,000. Directors, T. H. McFerren, of Brazil, Ind., W. J. Gilbert and L. H. Kreiter.

IOWA

August H. Johnson & Sons, Mediapolis Brick & Tile Works, Mediapolis, Iowa, want addresses of concerns manufacturing bat crushers.

The Des Moines Clay Company, of Des Moines, Iowa, is completing the construction of a new plant, where high-grade clay products, facing brick and exterior tile will be made.

KENTUCKY

The Elkhorn Brick and Supply Company, of Van Leer Junction, Ky., has been incorporated to manufacture brick. Capital, $20,000. E. L. McCue, W. S. Perry, E. J. Brandt, H. Boyce and John Rupert, all of Jenkins, Ky., are interested.

One of the Louisville (Ky.) brick plants is finding that it pays to educate even the colored employes in the latest angles on the subject of brickmaking. This company subscribes for "Brick and Clay Record" and turns it over to the engineer for his study after the men in the office are through reading it. The managers of the plant are experts in the business but now and then the laborers who are on the alert discover methods which can be improved upon.

The enforcement in Louisville (Ky.) of the anti-smoke ordinance is likely, in the course of a short time, to mean the removal from inside the city limits of all the brick plants now operating there. The brickmaker is, as a rule, unable to keep from making smoke when he makes brick. Even when started on wood and then run with coke for a time, the furnaces emit a white smoke which the smoke inspectors are objecting to. When the coal is burned to get the desired amount of heat for finishing off, a dense black smoke cannot be avoided and the smoke inspectors make life miserable for the brickmakers. One result to be counted on from the enforced removal of the plants to the outlying districts will probably be to increase the cost of delivery, which will add to the selling price.

MASSACHUSETTS

A fire did considerable damage to the storehouse of A. H. Hews and Company, Inc., on Raymond Street, North Cambridge, Mass., on the morning of June 1st. The firm is engaged in the pottery business and the storehouse is said to have been filled with the output of the pottery.

Allyn Morton Wilson, age 83 yrs., and founder of the Wilson Brick Company, died May 24th at his home in Windsor, Mass. Mr. Wilson was active in the brick business prior to 1876, and, after financial reverses in the panic which occurred at that time, he became engaged as a planter. Brick from his yard were used in the construction of many of the large insurance offices and mercantile buildings of Hartford, Conn., between 1850 and 1875.

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THAT HAS BEEN MADE

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INQUIRIES EARNESTLY SOLICITED

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Trautwein Dryer & Eng. Co., Chicago	1347

U

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BRICK AND CLAY RECORD, 445 Plymouth Court, Chicago

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STRENGTH
DURABILITY

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TO ALL
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GREATEST
PRESSURE

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BEST
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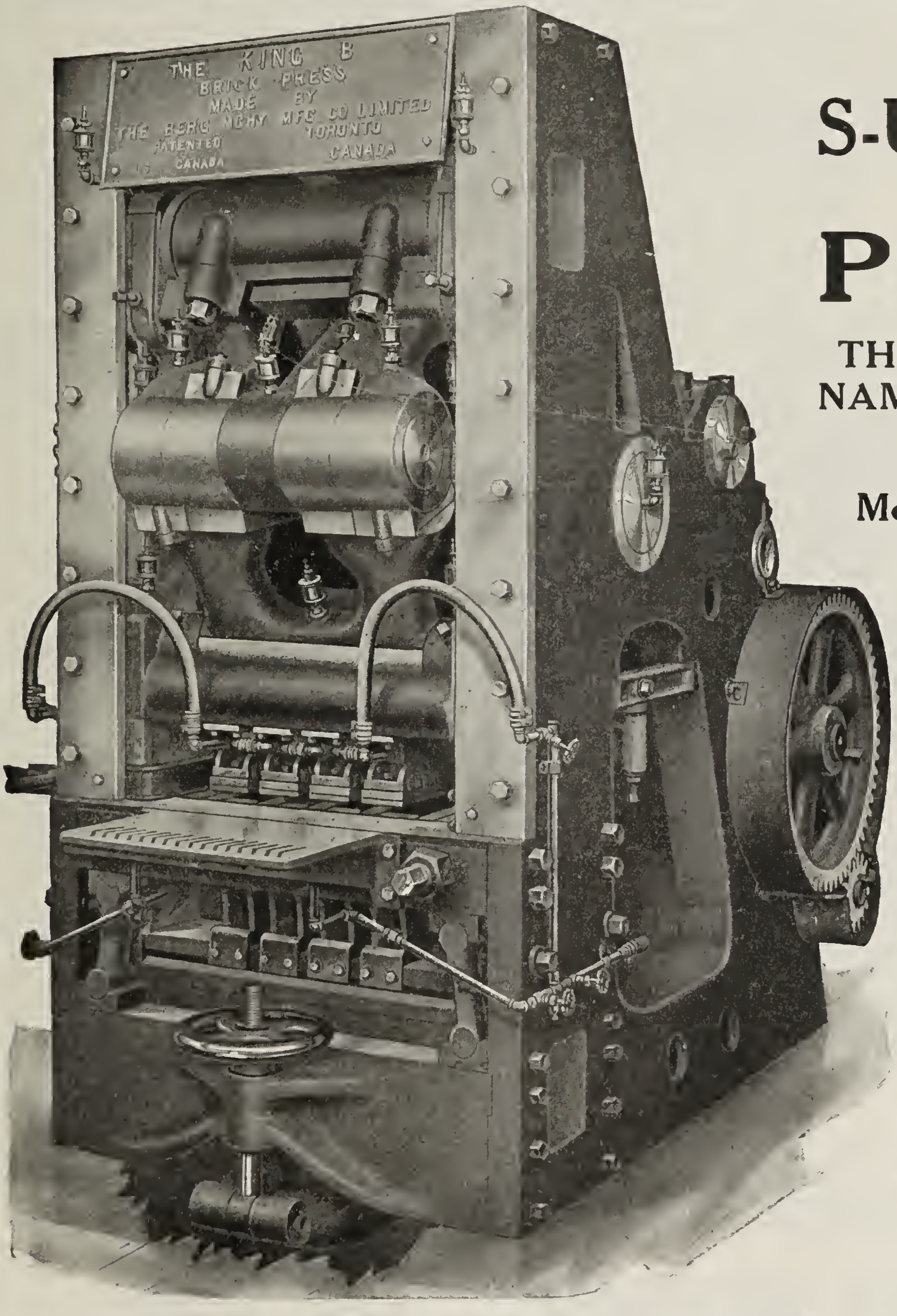

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Interchangeable Parts
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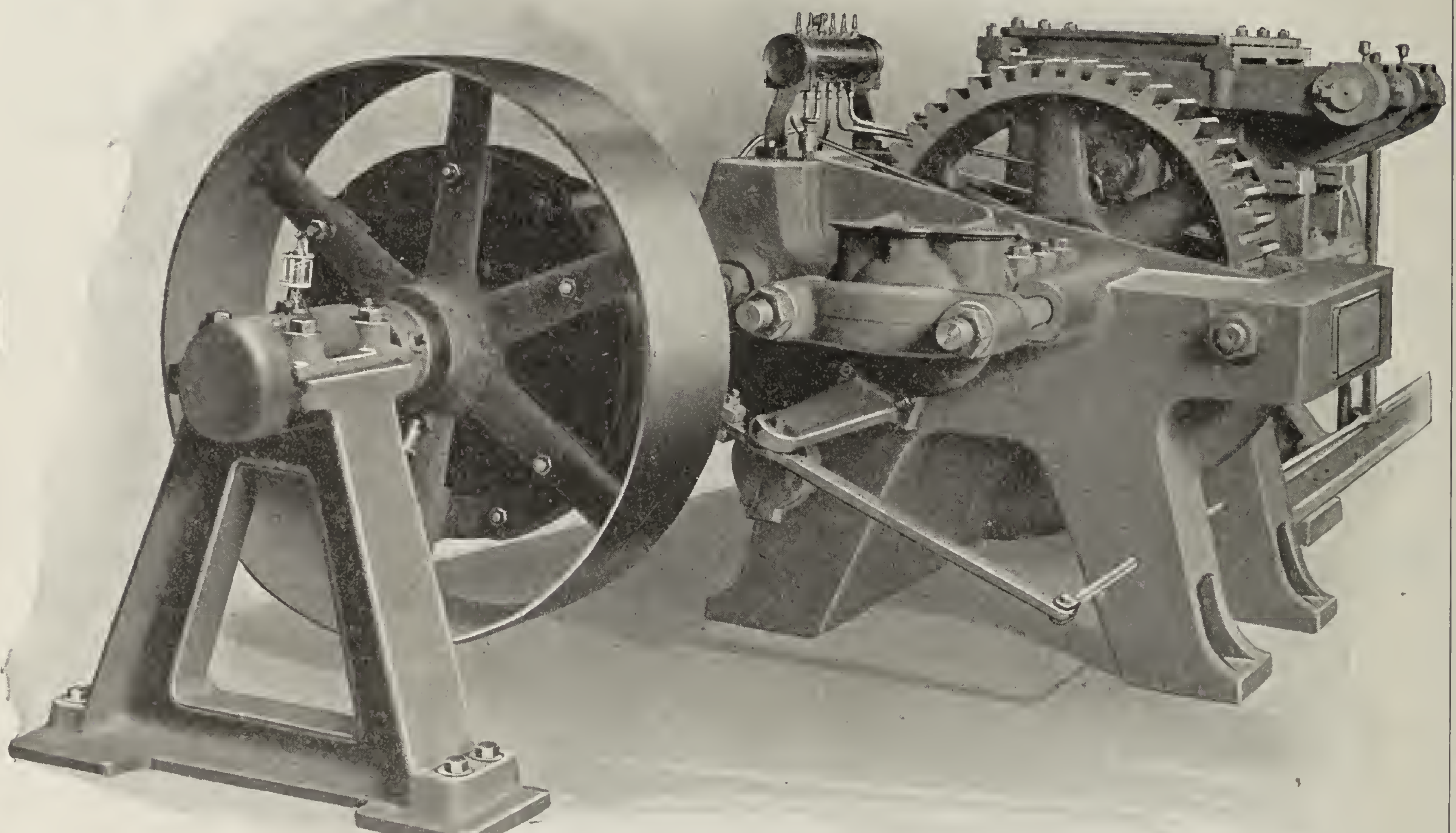
IT PAYS TO SEE IT —— PAYS BETTER TO USE IT



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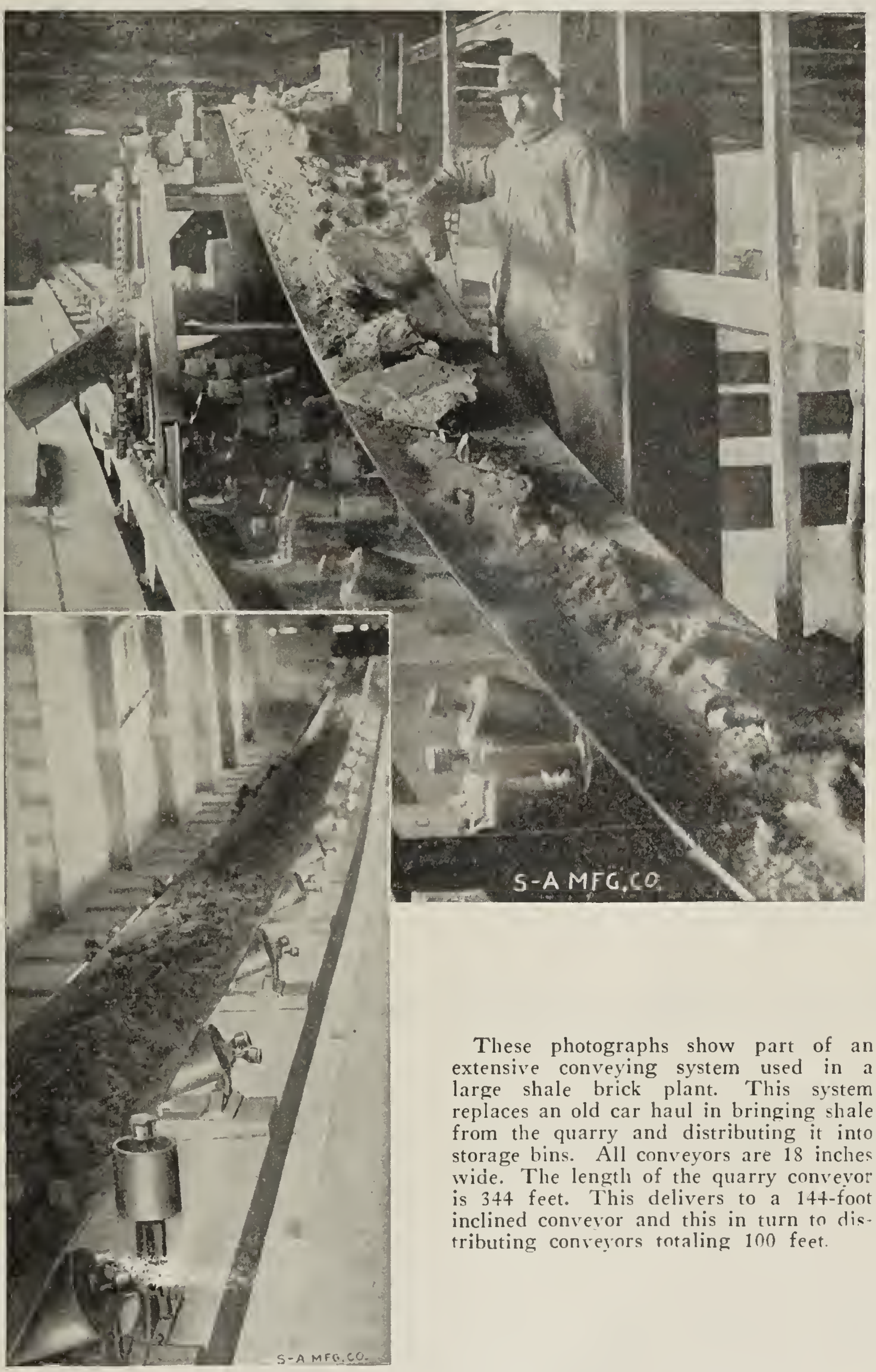
"S-A" Belt Conveyors for Brick Plants



These photographs show part of an extensive conveying system used in a large shale brick plant. This system replaces an old car haul in bringing shale from the quarry and distributing it into storage bins. All conveyors are 18 inches wide. The length of the quarry conveyor is 344 feet. This delivers to a 144-foot inclined conveyor and this in turn to distributing conveyors totaling 100 feet.

A Page From Our Book on Belt Conveyors

Every brick plant manager should be familiar with this method of handling material. The "S-A" Belt Conveyor is handling the raw clay and the finished product in hundreds of brick and tile plants. This 128-page book contains some valuable information regarding the belt conveyor, and illustrates a large number of actual installations; also complete information on a line of modern gates and automatic feeders.

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Mr. Paving Brick Manufacturer!

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"The Truth About the Concrete Roads of Wayne Co."

October 7th, 1913, issue

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"Creosoted Block a Failure"

November 4th, 1913, issue

Chicago's experience with wood block graphically told in pictures and type in the form of a 4-page insert at $2.00 per 100; $5.00 per 500; $8.50 per 1,000.

"Chicago Concrete Streets a Failure"

March 7th, 1914, issue

A similar story of Chicago's experience with concrete instead of wood block as above, in the same form and at the same price. A valuable piece of literature in concrete road competition.

"Gov. Glynn (N. Y.) Urges Use of Brick Roads"

April 7th, 1914, issue

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Look up these stories in the issues in which they appeared.

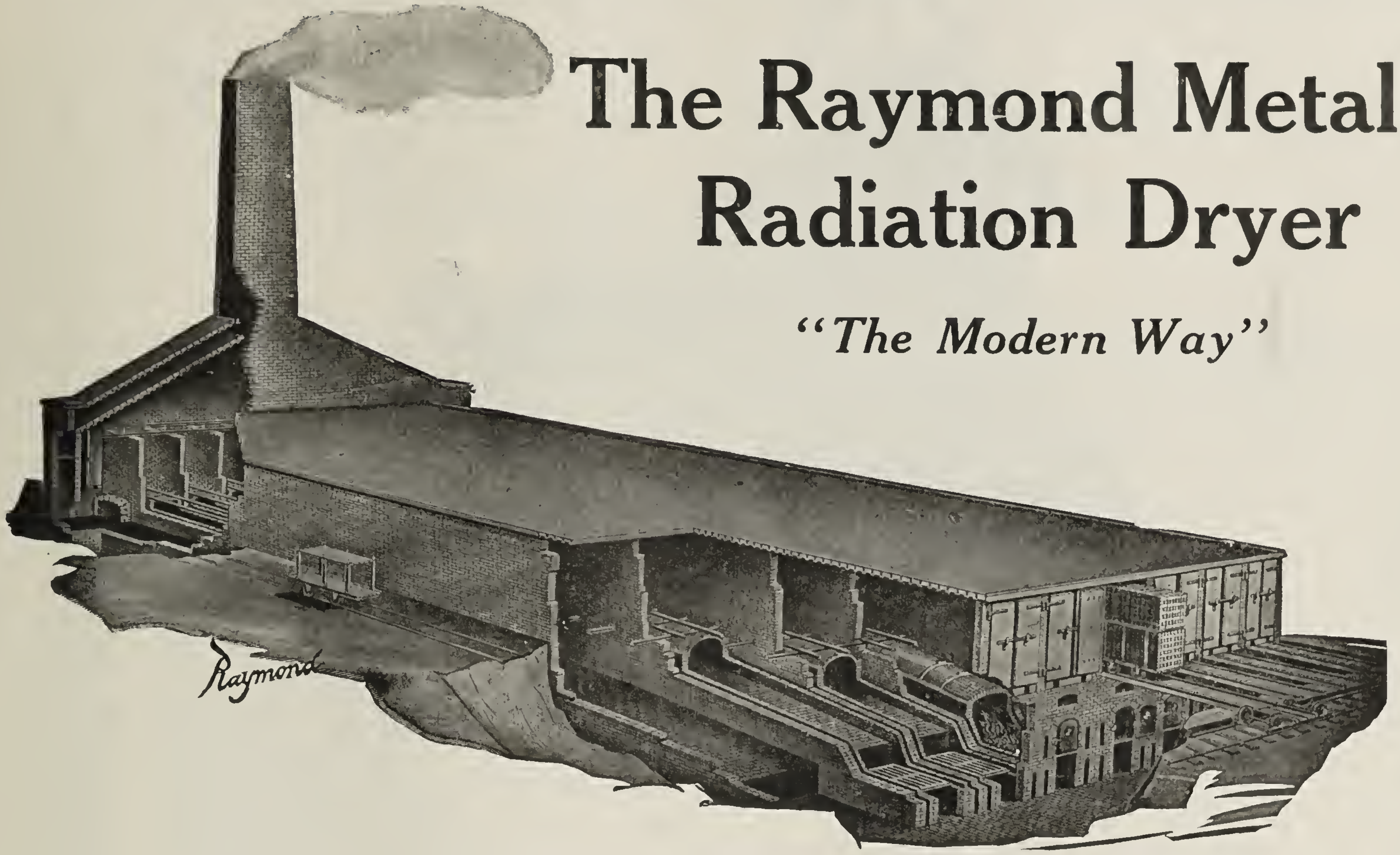
Following the title of each story, the issue in which it appeared is given. If you will refer to these issues you will quickly see the value of them in reprint form as quoted above for local use in "turning the tide" in favor of brick.

Brick and Clay Record

445 Plymouth Court
Chicago, Ill.

The Raymond Metallic Radiation Dryer

"The Modern Way"



This Dryer is built entirely of the best heat-radiating materials.

Perfect control of heat and circulation are absolutely assured. Each tunnel is independent of the other and not only can one tunnel be operated while the others are idle, but different degrees of heat may be maintained in different tunnels. This is one of the fuel saving features of the Metallic Radiation Dryer and one that makes for the utmost efficiency in operation.

None but pure, hot air ever touches the ware, thus guarding against scum. The absence of acids from waste gases also adds to the life of your dryer cars.

Wonderful fuel savings are accomplished, varying from 50% to 75%. Use either wood, coal, gas or oil.

Better install this Dryer now. Its economy will pay for it. Ask us to mail you Dryer information.

The C. W. Raymond Company

Send for a copy of our
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The Largest Exclusive Builders of Clay
Working Machinery in the World

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Shall we mail you the
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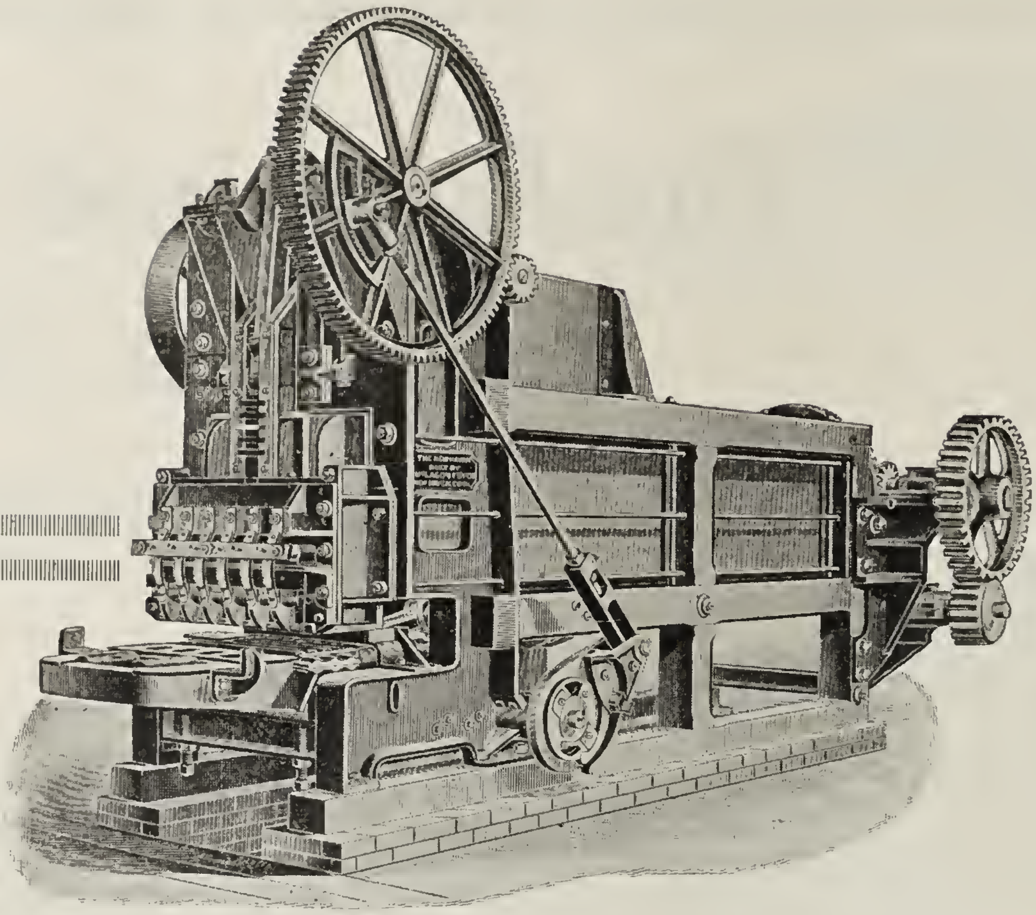

Assets and Liabilities

Every piece of machinery is an asset and a liability.

A high (or low) first cost does not make it a greater or less asset.

The interest, merely, on that first cost, is a liability. So is the repair cost. So is the cost of power to run the machine.

Estimated depreciation, or a sinking fund, calculated upon the life of the machine is a greater, or less liability, in proportion to the known life of the machine.

Efficiency—the amount of product and quality of product—determines the amount of the asset.

Not what the machine *costs*—what it *does.*

In making brick machinery we did not attempt to make a low-priced machine.

We figured on making brick machines with the highest asset making qualities and the lowest liability making points.

We realized that more brickmakers wanted *results*—that is, *profits*—than wanted low-first-cost and high-upkeep machines.

The interest on the difference in cost is nominal, when compared to other liability items.

Not that our machines are too costly. They are built to work, built to wear, built to *run,* day after day, without a breakdown.

Have these points in mind when you look at brick machinery.

New Haven Soft Mud Brick Machines

Turn Out More Brick, More Perfect Brick, Last Longer, Have Fewer Repairs, Use Less Power and Have Fewer Break Downs Than Any Other Soft Mud Brick Machine Made

The Eastern Machinery Company

New Haven, Conn.

New Gas Process Produces Wonderful Results

Inventors working under my personal instructions have developed and placed into practical operation a process for producing a 350 B. T. U. Gas at a temperature of only 200 Degrees F. You readily understand that a gas of this quality can be placed under high pressure and valve control in small, inexpensive service lines, and that the gas will be produced and consumed in the most efficient manner.

Guaranteed Results

After plans and specifications have been prepared showing your requirements, contracts would be let to a responsible company for the complete installation of the plant. Under the terms of this contract certain results would be produced by the contractor before you would be required to pay for the plant.

Safeguard in Engineering

Under this method you are fully protected by a responsible engineer, who makes your requirements a study, and prepares complete plans and specifications covering the work to be done and results to be produced, and with the assistance of the engineer the contracts are let to responsible contractors, who guarantee to produce the results as specified.

My Specialty

Designing any and all kinds of clay product plants and superintending the erection of same; testing clays, either chemically or physically; redesigning old plants and placing on profitable, economical and efficient operating basis; designing complete gas plants for power, drying, heating or burning; making an engineer's report on old or new plants for banks, trust or bonding companies for the purpose of assisting in floating securities.

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Efficiency Expert to the
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(Notice New Number) **Phone Franklin 3086**
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B. & B. Aerial Tramway Systems Handle Any Kind of Loose Material Expeditiously, Economically and with Absolute Safety

IF you have never investigated aerial transportation with a view toward reducing operating expenses, you should do so at once.

Where the grade is sufficient, gravity supplies all the power and one or two men can operate an entire tramway.

Let us tell you how a B. & B. Friction Grip Aerial Tramway can be used to positive advantage in your plant.

Ask for Catalog No. 16

FREE—Our interesting monthly magazine—THE YELLOW STRAND—free for one year to all rope users. Write for it.

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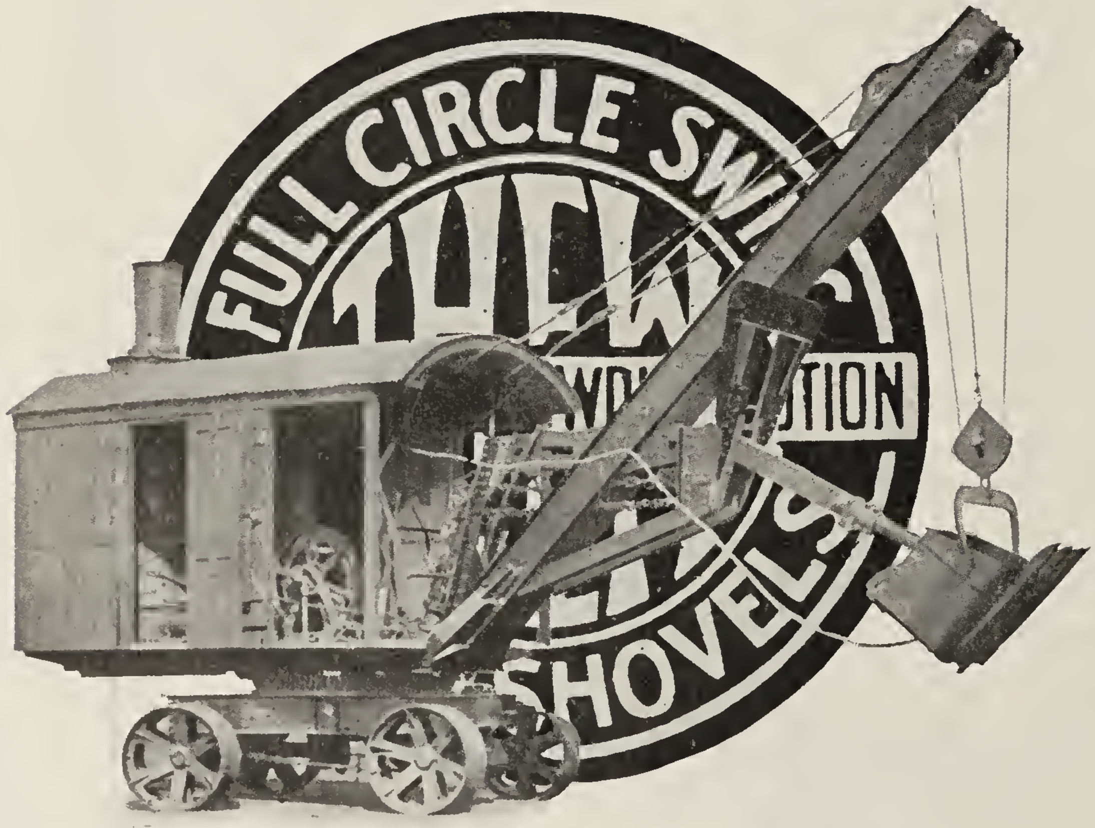
Begin Reducing Costs at the Clay Pit
Use A THEW—It Pays



You can load enough clay for 250,000 brick with one man and a Thew Shovel.

Made in six sizes. Operated by steam or electricity of any commercial voltage.

Type 0—18 tons; ⅝ yd. dipper for ordinary clays, 100,000 capacity.

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Type 2—35 tons; ¾ yd. dipper for ordinary shales, 125,000 capacity.

Type 3—40 tons; 1¾ yd. dipper for ordinary clays, 250,000 capacity.

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These outputs may be materially increased by adding a fireman and a laborer.

The Thew is Standard for Brickyards. 250 Brick Manufacturers now using Thew Shovels. Our catalogue shows why and is yours for the asking.

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(See Cars.)

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Frink Pyrometer Co.
Kirkpatrick, W. C.
Manufacturers Equipment Co.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.
Schaffer Eng. & Eq. Co.
Searing, Chas.
Sturtevant Co., B. F.
Tecktonius Mfg. Co., E. C.
Trautwein Dryer & Eng. Co.

Engines and Boilers.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Fairbanks, Morse & Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.
Raymond Co., C. W.
Sturtevant Co., B. F.

Engineers and Builders.

Brewer & Co., H.
Broderick & Bascom Rope Co.
Chambers Bros. Co.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.
Schaffer Eng. & Eq. Co.

THE BUYERS' DIRECTORY—Continued

Fans.

Berg Machy. Mfg. Co., Ltd.
Murray Iron Works Co.
Raymond Co., C. W.
Sturtevant Co., B. F.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.

Berg Machy. Mfg. Co., Ltd.
Murray Iron Wks. Co.
Raymond Co., C. W.
Stewart Heater Co.
Sturtevant Co., B. F.

Filter Presses.

Raymond Co., The C. W.

Flue Blowers.

Marion Mach. Fy. & Sup. Co.

Forgings.

Berg Machy. Mfg. Co., Ltd.

Fuel Economizers.

Sturtevant Co., B. F.

Furnace (Kiln).

Richardson-Lovejoy Eng. Co.

Gas Engines.

Fairbanks, Morse & Co.

Gas Producers.

Fairbanks, Morse & Co.

Gears.

Dodge Mfg. Co.
Manufacturers Equipment Co.
Nuttall Co., R. D.
Schultz & Son, A. L.
Weller Mfg. Co.

Grates and Grate Bars.

Berg Machy. Mfg. Co., Ltd.
Chicago Brick Machy. Co.
Gerlock, H. W.
Manufacturers Equipment Co.
Murray Iron Wks. Co.
Raymond Co., C. W.

Gravity Carrier.

Mathews Gravity Carrier Co.

Hand Power Presses.

Clearfield Machine Shops.
Lakewood Eng. Co.
Raymond Co., The C. W.

Hoists.

Dodge Mfg. Co.
Fairbanks, Morse & Co.
Lansing Co.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Block Machinery.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Manufacturers Equipment Co.
Raymond Co., C. W.

Inspection Tests—Consultation.

Hunt & Co., Robert W.
Richardson-Lovejoy Eng. Co.

Joint Filler.

Barber Asphalt Pav. Co.

Kilns.

Berg Machy. Mfg. Co., Ltd.
Claude Smith Co.
Denison Ceramic Eng. Co.
Manufacturers Equipment Co.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.
Schaffer Eng. & Eq. Co., The.
Tecktonius Mfg. Co., E. C.

Kiln Burning System.

Manufacturers Equipment Co.

Kiln Doors and Frames.

Gerlock, H. W.
Manufacturers Equipment Co.

Kiln Lugs and Bands.

Berg Machy. Mfg. Co., Ltd.
Gerlock, H. W.
Lakewood Eng. Co.
Raymond Co., The C. W.
Tecktonius Mfg. Co., E. C.

Lime Mixer.

Gerlock, H. W.

Locomotives (Steam).

Davenport Locomo. Works.
Dewey Bros.

Lug (Band).

Lakewood Eng. Co.
Raymond Co., The C. W.
Tecktonius Mfg. Co., E. C.

Manganese.

Roessler & Hasslacher Chemical Co.

Mechanical Draft.

Raymond Co., The C. W.
Sturtevant Co., B. F.
Trautwein Dryer & Eng. Co.

Molds.

Berg Machy. Mfg. Co., Ltd.
Gerlock, H. W.
Manufacturers Equipment Co.
Martin Brick Mch. Mfg. Co.
Mentz Co., G. B.
Raymond Co., C. W.

Mold Sanders.

Berg Machy. Mfg. Co., Ltd.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.

Motors—Electric.

Raymond Co., C. W.
Westinghouse Elec. & Mfg. Co.

Motors (Gasoline Haulage).

Whitcomb Co., Geo. D.

Oil Engines.

Fairbanks, Morse & Co.

Oil Burners.

Chicago Brick Machy. Co.
Weller Mfg. Co.

Paints.

Clinton Metallic Paint Co.

Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Clearfield Machine Shops.
Manufacturers Equipment Co.
Raymond Co., C. W.

Pallets and Trays.

Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

Paving Brick Filler (Cement).

Lehigh Portland Cement Co.

Perforated Sheet Metal.

Hendrick Mfg. Co.

Poidometers.

Schaffer Eng. & Eq. Co.

Portable Track.

Buckeye Rolling Mill Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co., The.
Raymond Co., The C. W.

Potters' Machinery.

Raymond Co., The C. W.

Power Plant Equipment (Complete).

Dodge Mfg. Co.
Murray Iron Wks. Co.
Rodgers Eng. Co., L. E.
Sturtevant Co., B. F.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Pug Mills.

Arbuckle & Co.
Berg. Machy. Mfg. Co., Ltd.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co.
Raymond Co., C. W.
Schultz & Son, A. L.

Pulleys—Cast Iron, Clutch and Wood.

(See Supplies.)

Pulverizers.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Chicago Brick Machinery Co.
Dodge Mfg. Co.
Manufacturers Equipment Co.
Potts & Co., C. & A.
Raymond Co., C. W.

Pumps—Steam.

Fairbanks, Morse & Co.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Englehard, Chas.
Frink Pyrometer Co.
Stupakoff Laboratories.

Quartz Glass Articles.

Englehard, Chas.

Rails (Frogs and Switches).

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Buckeye Rolling Mill Co.
Frank, M. K.
Lakewood Eng. Co.
Orenstein-Arthur Koppel Co.
Raymond Co., C. W.

Railway Equipment (Industrial).

Arbuckle & Co.
Buckeye Rolling Mill Co.
Davenport Loco. Works.
Fairbanks, Morse & Co.
Gerlock, H. W.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.
Raymond Co., C. W.

Rattler.

Berg Machy. Mfg. Co., Ltd.
Manufacturers Equipment Co.

Recording Gages.

Brown Instrument Co.

Represses.

Berg Machy. Mfg. Co., Ltd.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Lakewood Eng. Co.
Martin Brick Mach. Mfg. Co.
Raymond Co., C. W.

Resistance Thermometers.

Engelhard, Chas.

Revolution Indicators.

Brown Instrument Co.

Roofing Tile Machinery.

Manufacturers Equipment Co.
Raymond Co., C. W.

Rope Preservative.

Dodge Mfg. Co.

Rope (Wire and Manila).

Broderick & Bascom Rope Co.
Dodge Mfg. Co.
Manufacturers Equipment Co.

Sand Lime Brick Machinery.

Berg Machy. Mfg. Co., Ltd.
Chicago Brick Machy. Co.
Jackson & Church Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Raymond Co., C. W.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Edgar Allen American Mang. Steel Co.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Chambers Bros. Co.
Hendrick Mfg. Co.
Lakewood Eng. Co.
Raymond Co., C. W.
Schofield-Burkett Cons. Co.
Weller Mfg. Co.

Sewer Pipe Machinery.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Manufacturers Equipment Co.
Raymond Co., C. W.

Shale Planer.

Arbuckle & Co.

Steamers (Clay).

Schaffer Eng. & Eq. Co., The.

Steam Gages.

Brown Instrument Co.

Steamship Company.

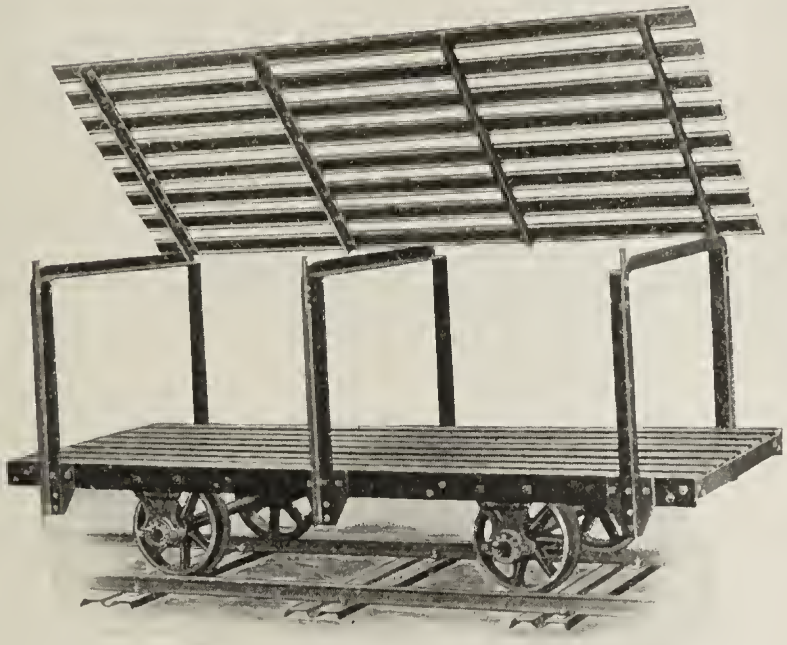
Detroit & Cleveland Nav. Co.

Steam Shovels.

Marion Steam Shovel Co.
Thew Auto. Shovel Co.

"LAKEWOOD LINE CARS"

Dryer Cars
Rack Cars
Dump Cars



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Catalogs upon request

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Your Clay May Be Different

—may be peculiar—hard to get results with. But if it wasn't worth fooling with, you certainly wouldn't be making brick out of it. And if it's worth making into brick, The Standard Brick Drier will dry it successfully.

The Standard Natural Draft Steam Drying System has been up against "different and peculiar" clays so often that we know just what it will do in **your** case. Let us hear about your drying troubles—let us make you a definite proposition, backed by a plain, written guaranty.

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THE BUYERS' DIRECTORY—Continued

Steel Pallets.

Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.
Raymond Co., The C. W.

Supplies.

Arbuckle & Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Eastern Machinery Co.
Edgar Allen American Mang. Steel Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Martin Brick M. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Tecktonius Mfg. Co., E. C.
Weller Mfg. Co.

Thermometers.

Brown Instrument Co.
Engelhard, Chas.
Manufacturers Equipment Co.
Standard Dry Kiln Co.

Tile Machinery.

Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Chicago Brick Machy. Co.
Manufacturers Equipment Co.
Potts & Co., C. & A.
Raymond Co., The C. W.

Transfer Cars.

Gerlock, H. W.
Lansing Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.

Trucking Systems.

Raymond Co., C. W.

Turntables.

Fairbanks, Morse & Co.
Lakewood Eng. Co.
Lansing Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.
Standard Dry Kiln Co., The.

Unloading Devices for Pans.

Clearfield Machine Shops.
Raymond Co., The C. W.

Wagons.

Manufacturers Equipment Co.

Water Softeners.

Dodge Mfg. Co.

Wheelbarrows.

(See Barrows and Trucks.)

Wheels.

Lehigh Car, Wheel & Axle Works.
Orenstein-Arthur Koppel Co.

Winding Drums.

Manufacturers Equipment Co.
Marion Machine, Fdy. & S. Co.
Weller Mfg. Co.

Wire Rope.

Broderick & Bascom Rope Co.
Manufacturers Equipment Co.
Raymond Co., C. W.

It is a Policy That Brings Results

The National Paving Brick Manufacturers' Association stands for the proper construction of Vitrified Brick Pavements. It responds fearlessly and courageously in the interest of the taxpayers by giving proper engineering advice upon any and all occasions affecting the interest of municipalities. These are the results that follow:

Economy in street improvements.
Satisfaction to the users and non-users of roadways.
A sanitary condition is afforded.
The nearest possible approach to a dustless town.
Even the housekeeper is favorably affected.
A street that is pleasant to the eye.

All these favors go to patrons of vitrified brick for street improvements upon one condition, namely—that they follow our "No. 1 Directions." They are easily understood and all the details are easily executed. What the manufacturers receive, leave it to us. We know that in the end all this means more brick.

National Paving Brick Manufacturers' Association

Will P. Blair, Secretary

Cleveland, - Ohio

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Red Label Piano Wire

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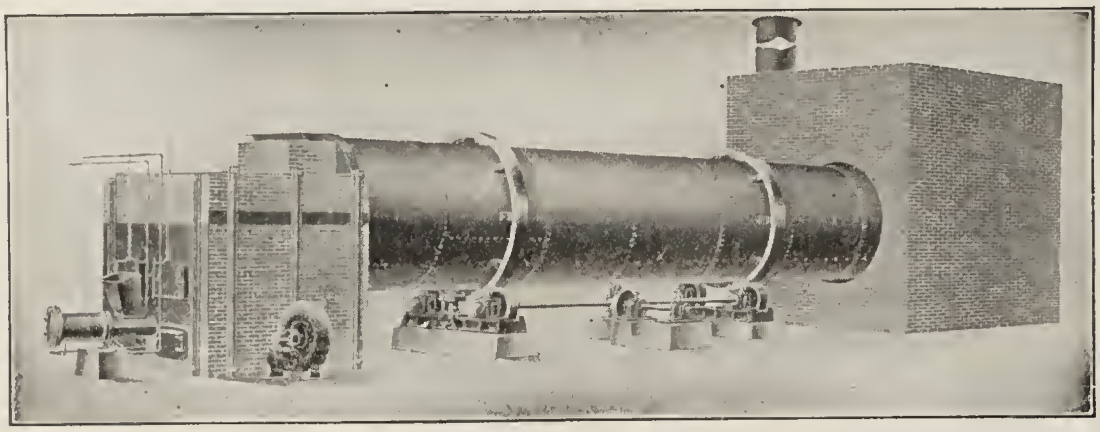

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AT LOW COST
YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON
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YOU CAN THEN SCREEN TO ELIMINATE PEBBLES, ETC.

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A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

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The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

Modern Brickmaking

By A. B. SEARLE

440 Pages 260 Illustrations $5.00 Post Free

THE NEWEST and BEST OF ALL CLAYWORKING BOOKS prepared by a famous authority in clay products manufacture, qualified to give the trade the latest and best information regarding clayworking processes.

"BRICK AND CLAY RECORD"
445 Plymouth Court, Chicago

Reciprocal Advertising Section
of
Clay Product Manufacturers and Dealers

This pink section of "Brick and Clay Record" is the clayworker's opportunity to put into practical application the true spirit of co-operation.

It lists, by classifications, the manufacturers of burned clay products in the various branches of the industry so one may find them at a glance.

It contains, in addition to this classified list, cards carrying a description of the product made by these manufacturers and such other information that will assist any interested clayworker in ascertaining just what he wants to know.

Here's How You, as Clayworkers, May Put Into Practice the True Spirit of Co-operation

Suppose you are a manufacturer of drain tile only—or of any other one of the several products made from burned clay.

Suppose that one of your customers or one of your fellow townsmen wants some sewer pipe, or hollow block, or facing brick, or vitrified paving block, or any of the products you do not make.

Naturally, you would rather see him get BURNED clay than some other material, because every sale of clay products in YOUR community boosts YOUR own product.

LOOK OVER THE CLASSIFIED LIST

Pick out the manufacturer of the product required that is nearest to you. Get in touch with him at once. Either buy the product from him as a dealer or tip him off to the proposed job so that he may get busy and land it. If you do this and he does this for you—it is co-operation—it is true reciprocity.

If You Want Representation Somewhere

If you want YOUR product in some section where your present sales are small and where it scarcely would pay you to send a special salesman—consult this classified list and select a dealer from those given in the succeeding pages and write to him.

If You Are a Dealer

And want a line of brick or tile or some other burned clay product—or you want something in some particular color or shade or texture, scan over the classified list of manufacturers in the succeeding pages and write to the one that fits your case.

Be a Booster—don't be selfish. The success of any clay product means the success of the product that you manufacture.

If you make brick—advocate vitrified sewer pipe, drain tile, and all other lines.

If you make sewer pipe, advocate brick, hollow block and all the other burned clay products.

If you make hollow block, advocate everything that is made of burned clay.

And while boosting, remember always that you are boosting for yourself because you are practicing co-operation—you are preaching reciprocity, and you are teaching the other fellow to boost for you.

Every Public Building—every Paved street—every Sewer Contract—every Farm that is drained with tile—in your town or community that uses any material that is not burned clay INCREASES your taxes without helping yourself or any other clayworker.

USE COUPON PAGE 1426

A Classified Directory of Clay Product Manufacturers

Is your name in this list? If it is not you should write us about it at once. The cost is small—the result will be large.

Block or Tile (Hollow)

Alberta Clay Products Co.	Medicine Hat, Alta.	Canada.
Hamilton Clay Mfg. Co.	Hamilton	Ill.
Davenport Brick & Tile Co.	Davenport	Iowa.
Harvey Brick & Tile Co.	Harvey	Iowa.
Postville Clay Products Co.	Postville	Iowa.
Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.
Macatee & Sons, W. L.	Houston	Tex.

(See Silo Block.)

Brick (Common)

Tregillus Clay Pro., Ltd., Longhead Bldg.	Calgary, Alta.	Canada.
Tift Silica Brick & Stone Co.	Tifton	Ga.
Alton Brick Co.	Alton	Ill.
Hamilton Clay Mfg. Co.	Hamilton	Ill.
Crawfordsville Shale Brick Co.	Crawfordsville	Ind.
Boone Brick, Tile & Paving Co	Boone	Iowa.
Harvey Brick & Tile Co.	Harvey	Iowa.
Postville Clay Products Co.	Postville	Iowa.
Hodkinson, Wm.	Beaver City	Nebr.
Post, W. & J., Glen Head	Long Island	N. Y.
Alliance Brick Co.	Alliance	Ohio.
Alliance Clay Product Co.	Alliance	Ohio.
Belden Brick Co., The	Canton	Ohio.
Metropolitan Paving Brick Co.	Canton	Ohio
Gaither Brick Co.	Okmulgee	Okla.
Watsontown Brick Co.	Watsontown	Pa.
D'Hanis Brick & Tile Co.	D'Hanis	Tex.
Wisconsin Brick Co.	Madison	Wis.
Sheridan Press Brick & Tile Co., Inc.	Sheridan	Wyo.

Brick (Enamel)

American Enameled Brick & Tile Co.	New York	N. Y.
Bonner and Marshall Brick Co.	Chicago	Ill.
Macatee & Sons, W. L.	Houston	Tex.

Brick (Face)

Pacific Sewer Pipe Co.	Los Angeles	Cal.
Tregillus Clay Pro. Co., Longhead Bldg.	Calgary, Alta.	Canada.
Hood Brick Co., B. Mifflin	Atlanta	Ga.
Tift Silica Brick & Stone Co.	Tifton	Ga.
Kimbell Brick Co., S. S.	Chicago	Ill.
Crawfordsville Shale Brick Co.	Crawfordsville	Ind.
Boone Brick, Tile & Paving Co.	Boone	Iowa.
Continental Brick Co.	Davenport	Iowa.
Hydraulic-Press Brick Co.	St. Louis	Mo.
Progress Press Brick & Machine Co.	St. Louis	Mo.
Fiske & Company, Inc.	New York	N. Y.
Alliance Brick Co.	Alliance	Ohio.
Alliance Clay Products Co.	Alliance	Ohio.
Belden Brick Co.	Canton	Ohio.
Ironclay Brick Co., The	Columbus	Ohio.
McArthur Brick Co.	McArthur	Ohio.
Gaither Brick Co.	Okmulgee	Okla.
Bradford Pressed Brick Co.	Bradford	Pa.
Chestnut Ridge White Bk. Co.	Kunkletown	Pa.
Beaver Clay Mfg. Co.	New Galilee	Pa.
Fallston Fire Clay Co., 1335 Oliver Bldg.	Pittsburg	Pa.
Watsontown Brick Co.	Watsontown	Pa.
D'Hanis Brick & Tile Co.	D'Hanis	Tex.
Macatee & Sons, W. L.	Houston	Tex.
Wisconsin Brick Co.	Madison	Wis.
Sheridan Press Brick & Tile Co., Inc.	Sheridan	Wyo.

Brick (Fire)

Pacific Sewer Pipe Co.	Los Angeles	Cal.
Alsey Brick & Tile Co.	Alsey	Ill.
Chicago Retort & Fire Brick Co.	Chicago	Ill.
Mexico Brick & Fire Clay Co.	Mexico	Mo.
Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Didier-March Co.	Perth Amboy	N. J.
Greenpoint Fire Brick Co., 111 Clay St.	Brooklyn	N. Y.
Fiske & Company, Inc.	New York	N. Y.
Maurer & Son, H.	New York	N. Y.
Belden Brick Co., The	Canton	Ohio.
Dover Fire Brick Co.	Cleveland	Ohio.
Davis Fire Brick Co.	Oak Hill	Ohio.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.
Soisson Fire Brick Co., Jos.	Bolivar	Pa.
Queens Run Fire Brick Co.	Lock Haven	Pa.
Reading Fire Brick Works	Reading	Pa.

Brick (Hollow)

Kankakee Tile & Brick Co., The	Kankakee	Ill.

Brick or Block (Paving)

Tregillus Clay Product, Ltd.	Calgary, Alta.	Canada.
Alton Brick Co.	Alton	Ill.
Danville Brick Co.	Danville	Ill.
Purington Paving Brick Co.	Galesburg	Ill.
Murphysboro Paving Brick Co.	Murphysboro	Ill.
Barr Clay Co.	Streator	Ill.
Clinton Paving Brick Co.	Clinton	Ind.
Terre Haute Vit. Brick Co.	Terre Haute	Ind.
Barber Asphalt Paving Co.	Des Moines	Iowa.
Sterling Brick Co.	Olean	N. Y.
Alliance Clay Pro. Co.	Alliance	Ohio.
Big Four Clay Co.	Canton	Ohio.
Metropolitan Paving Brick Co.	Canton	Ohio.
Harris Brick Co.	Cincinnati	Ohio.
Cleveland Brick & Clay Co.	Cleveland	Ohio.
Deckman-Duty Brick Co.	Cleveland	Ohio.
Hocking Valley Brick Co.	Columbus	Ohio.
United Brick Co.	Conneaut	Ohio.
Nelsonville Brick Co.	Nelsonville	Ohio.
Carlyle Paving Brick Co.	Portsmouth	Ohio.
Bessemer Limestone Co.	Youngstown	Ohio.
Gaither Brick Co.	Okmulgee	Okla.
Mayer Brick Co., C. P.	Bridgeport	Pa.
Shawmut Paving Brick Co.	Shawmut	Pa.
Watsontown Brick Co.	Watsontown	Pa.
Macatee & Sons, W. L.	Houston	Tex.

Brick (Pottery)

Hood Brick Co., B. Mifflin	Atlanta	Ga.

Chimney Tops

Cannelton Sewer Pipe Co.	Cannelton	Ind.

Clay (Fire)

Lehigh Clay Co.	Webster City	Iowa.
Laclede-Christy Clay Products Co.	St. Louis	Mo.
Mitchell Clay Mfg. Co.	St. Louis	Mo.
Raritan Ridge Clay Co.	Metuchen	N. J.

Clay (Terra Cotta)

Lehigh Clay Co.	Webster City	Iowa.
Raritan Ridge Clay Co.	Metuchen	N. J.

Clay (Tile)

Raritan Ridge Clay Co.	Metuchen	N. J.

Coal Gas Benches

Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Didier-March Co.	Perth Amboy	N. J.

Colonial Swells

Post, W. & J., Glen Head	Long Island	N. Y.

Fire Proofing

Alberta Clay Products Co.	Medicine Hat, Alta.	Canada.
Kankakee Tile & Brick Co., The	Kankakee	Ill.
Metropolitan Paving Brick Co.	Canton	Ohio

Flower Pots

Hews & Co., A. H., Inc.	Cambridge	Mass.

Flue Lining

Cannelton Sewer Pipe Co.	Cannelton	Ind.

Furring Tile

Kankakee Tile & Brick Co., The	Kankakee	Ill.

Glass House Refractories

Laclede-Christy Clay Prod. Co.	St. Louis	Mo.

Raggle Blocks

Kimbell Brick Co., S. S.	Chicago	Ill.

Refractories

Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Didier-March Co.	Perth Amboy	N. J.
Davis Fire Brick Co.	Oak Hill	Ohio.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.

Sewer Block

Davenport Brick & Tile Co.	Davenport	Iowa.

Classified Directory of Clay Product Manufacturers—Cont'

Sewer Brick

Alberta Clay Products Co.	Medicine Hat, Alta.,	Canada.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.

Sewer Pipe

Pacific Sewer Pipe Co.	Los Angeles	Cal.
Alberta Clay Products Co.	Medicine Hat, Alta.,	Canada.
Cannelton Sewer Pipe Co.	Cannelton	Ind.
Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Metropolitan Paving Brick Co.	Canton	Ohio
East Ohio Sewer Pipe Co., The.	Irondale	Ohio.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.

Silica

Silica Products Co.	Stockton	Cal.

Silo Block

Davenport Brick & Tile Co.	Davenport	Iowa.

Terra Cotta (Architectural)

St. Louis Terra Cotta Co.	St. Louis	Mo.

Terra Cotta Mantels

St. Louis Terra Cotta Co.	St. Louis	Mo.

Terra Cotta Monuments and Statuary

St. Louis Terra Cotta Co.	St. Louis	Mo.

Tile (Drain)

Alberta Clay Products Co.	Medicine Hat, Alta.,	Canada.
Kankakee Tile & Brick Co., The	Kankakee	Ill.
Harvey Brick & Tile Co.	Harvey	Iowa.
Postville Clay Products Co.	Postville	Iowa.
Columbus Clay Mfg. Co.	Black Lick	Ohio.
Evans Clay Mfg. Co.	Uhrichsville	Ohio.

Tile (Floor)

Pittsburg Tile Mfg. Co.	East Liverpool	Ohio.

Tile (Partition)

Kankakee Tile & Brick Co.	Kankakee	Ill.

Tile (Pottery)

Hood Brick Co., B. Mifflin	Atlanta	Ga.

Tile (Promenade)

Hood Brick Co., B. Mifflin	Atlanta	Ga.
Pittsburg Tile Mfg. Co.	E. Liverpool	Ohio.

Tile (Tube)

Didier-March Co.	Perth Amboy	N. J.

Wall Coping

Alberta Clay Products Co.	Medicine Hat, Alta.,	Canada.
Cannelton Sewer Pipe Co.	Cannelton	Ind.

Water Gas Linings

Laclede-Christy Clay Prod. Co.	St. Louis	Mo.
Didier-March Co.	Perth Amboy	N. J.

Dealers

Hood Brick Co., B. Mifflin	Atlanta	Ga.
Bonner & Marshall Brick Co.	Chicago	Ill.
Kimbell Brick Co., S. S.	Chicago	Ill.
Chestnut Ridge Brick Co.	New York	N. Y.
Fiske & Company, Inc.	New York	N. Y.
Queisser-Bliss Co., The	Cleveland	Ohio.
Macatee & Sons, W. L.	Houston	Tex.

Dealers (Face Brick)

Wisconsin Brick Co.	Madison	Wis.

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QUEENS RUN FIRE BRICK

were used in the first anthracite Hot Blast Furnace in America (see Note), built in 1835—almost 80 years ago.

The Quality of our blast furnace, as well as general purpose Brick has been maintained ever since. When in the market address your inquiries to:

QUEENS RUN FIRE BRICK CO., Lock Haven, Pa.

Note: See Rodgers Fourth Annual State Geological Report published in 1840.

If You Believe Efficiency is a Factor

in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or repairing old ones why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits.

We make a specialty of high grade fire brick for kiln construction, and special shapes for fire boxes, arches, flues and bottoms.

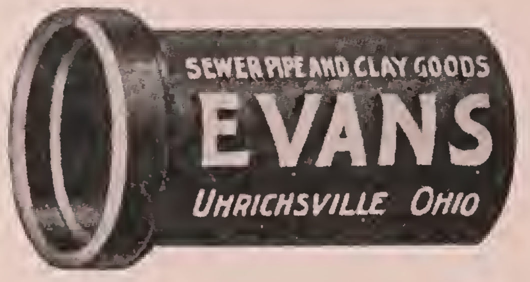
Consult us before buying.

Ten plants located on the Pennsylvania, New York Central and B. & O. railroads.

Jos. Soisson Fire Brick Company

General Office, Connellsville, Pa.
Sales Office, Bolivar, Pa.
J. B. Hammond, Sales Manager

The Evans Clay Manufacturing o.
Uhrichsville, Ohio



- Standard Sewer Pipe
- Double Strength Pipe
- Wall Coping
- Chimney Tops
- Building Blocks

- Flue Linings
- Stove Pipe
- Thimbles
- Fire Brick
- Drain Tile

And other Fire Clay Products

Established 1856

HENRY MAURER & SON

Manufacturers of

High Grade Fire Brick

Our "Henry Maurer" No. 1 quality Fire Brick is recognized throughout the country as a standard article. We make all shapes and sizes for kiln-work and all other requirements. Catalogues on application. We solicit your inquiries.

Office: 420 East 23rd St. New York, N. Y.

Works: Maurer, N. J. (On L. V. R. R. and C. R. R., N. J.)
Philadelphia Office: Pennsylvania Building

AJAX

FIRE BRICK

Two of the many hundred kilns built of these famous brick. Are you using them?

Write for price and catalogue.

Chicago Retort & Fire Brick Co.
195 So. Clark St., CHICAGO

FIRE BRICK

DOVER FIRE BRICK CO.

Incorporated 1870

—— MANUFACTURERS OF ——

Dover and Buckeye Fire Brick

Unexcelled for Kiln Purposes

509 Cuyahoga Bldg. Cleveland, Ohio

Fire Brick for all types of kilns.
For burning all kinds Clay Products.

For **Side Walls**
For **Crowns**
For **Fire Arches**
For **Perforated Bottoms**

Consult us when in market.
We are ready to serve you.

DAVIS FIRE BRICK CO.
OAK HILL, OHIO

Official Directory of
Clay Products Associations

This Directory is published in response to the many inquiries we receive for the names of the officers of the various associations, in order to avoid the delay necessary in writing to us or to them. Any additions or changes of which you know will be appreciated by the Editor.

Alberta Clay Products' Mfrs. Association—J. P. Henry, Pres., Edmonton, Can.; W. G. Worchester, Sec'y, Alberta, Can.

American Ceramic Society—C. W. Parmelee, B. S., Pres., New Brunswick, N. J.; Edward Orton, Jr., E. M., Sec'y, Columbus, Ohio.

American Face Brick Association—J. W. Moulding, Pres., Chicago, Ill.; R. D. T. Hollowell, Sec'y and Treas., Pittsburgh, Pa.

Ancient Order of Chaldeans—Iverson C. Wells, Supreme Keeper of Tablets, 445 Plymouth Court, Chicago.

Arkansas Brick Manufacturers' Association—M. C. Burke, Pres., Fort Smith, Ark.; C. E. Taylor, Sec'y, Little Rock, Ark.

Brick Builders' Bureau—N. Ellery, Sec'y, Merchants' Exchange Bldg., San Francisco, Cal.

Building Brick Association—Wm. Hanley, Pres., Bradford, Pa.; H. Jerome Lee, Marbridge Bldg., N. Y. City.

Canadian National Clay Products' Association—C. A. Millar, Pres., Toronto, Can.; Jno. R. Walsh, Toronto, Can.

Chicago Face Brick Association—L. D. Binyon, Pres., Chicago; Jno. D. Blount, Sec'y, Chicago.

Cleveland Face Brick Association—R. L. Queisser, Sec'y, Cleveland, Ohio.

Eastern Paving Brick Manufacturers' Association—C. E. Foster, Pres., Bradford, Pa.; G. W. Lenkerd, Sec'y and Treas., Clymer, Pa.

Face Brick Dealers' Association of America—F. Lawson Moores, Pres., Cincinnati, Ohio; R. L. Queisser, Sec'y, Cleveland, O.

Illinois Clay Manufacturers' Association—J. M. Mamer, Pres., Campus, Ill.; A. E. Huckins, Sec'y, Champaign, Ill.

International Clay Products Bureau—Geo. H. Tefft, Sec'y-Treas., Kansas City, Mo.

Interstate Mantel & Tile Dealers' Association—Robert Beck, Pres., Chicago, Ill.; Geo. F. Eubanks, Sec'y, Atlanta, Ga.

Iowa Clay Products Manufacturers' Association—B. C. Keeler, Pres., Mason City, Ia.; C. B. Platt, Sec'y, Van Meter, Iowa.

Iowa State Drainage Association—W. H. Stevenson, Sec'y, Ames, Iowa.

Kansas Society of Clay Manufacturers—Paul Teetor, Sec'y, Lawrence, Kan.

National Brick Manufacturers' Association—Eben Rodgers, Pres., Alton, Ill.; T. A. Randall, Sec'y, Indianapolis, Ind.

National Paving Brick Association—C. J. Deckman, Pres., Cleveland, Ohio; Will P. Blair, Sec'y, Cleveland, O.

National Terra Cotta Society—F. Wagner, Pres., Chicago, Ill.; Wm. D. Gates, Sec'y, Chicago, Ill.

Northwestern Clay Products Manufacturers' Association—M. C. Madsen, Pres., Hutchinson, Minn.; T. B. Martin, Sec'y and Treas., Minneapolis, Minn.

Pacific Clay Products Publicity Bureau—Frederick C. Davis, Sec'y, Crocker Bldg., San Francisco.

Paving Brick Publicity Bureau—W. H. Hansen, Sec'y, 1249 Otis Bldg., Chicago, Ill.

Refractories Manufacturers' Association—R. D. Hatton, Pres., St. Louis, Mo.; John H. Cavender, Sec'y and Treas., Chicago.

Society of Vitrified Clay Manufacturers—J. L. Scott, Pres., Macomb, Ill.; W. H. Bassler, Sec'y, Chicago, Ill.

Texas Brick Manufacturers' Association—John F. Butler, Pres., Austin, Texas; C. C. Cates, Sec'y, Dallas, Tex.

United States Potters' Association—W. S. George, Pres., East Liverpool, Ohio; Chas. F. Goodwin, Sec'y, E. Liverpool, Ohio.

Washington Clayworkers' Association—T. J. Macintosh, Pres., Seattle, Wash.; James Gibson, Sec'y, Seattle, Wash.

Western Ontario Clayworkers' Association—Alfred Whelan, Sec'y, Cario, Ont.

Western Paving Brick Manufacturers' Association—Robt. Nesch, Pres., Pittsburgh, Kan.; G. W. Thurston, Sec'y, Kansas City, Mo.

Wisconsin Clay Manufacturers' Association—John S. Ringles, Pres., Wausau, Wis.; Prof. Samuel Weidman, Sec'y, Madison, Wis.

Trade Names Now in Use

on Face Brick and Other Clay Products

Consult this list before you adopt or create a name for your material and so avoid confusion and duplication.

Many of the names have been registered in the U. S. Patent Office at Washington, D. C., and your use of them constitutes an infringement.

This list is complete, so far as "Brick & Clay Record" can make it. New trade names will be added as fast as they are adopted and notification sent this office. If any name that you are now using does not appear, advise us, and we will do what we can to protect you in that use, by giving publicity to your claim.

Afghan—Crawfordsville Shale Brick Co., Crawfordsville, Ind.
Algonquin—Alliance Brick Company, Alliance, Ohio.
Anti-Fired—London Pressed Bk. & Tile Co., Ltd., London, Ont.
Antique—The Everhard Company, Massillon, Ohio.
Arabian—Dubois & Butler Company, Falls Creek, Pa.
Armor—Greenpoint Fire Brick Company, Brooklyn, N. Y.
Artbrique—Yingling-Martin Brick Company, Johnsonburg, Pa.
Astrakhan—Columbus Brick & Terra Cotta Co., Columbus, O.
Athena—Hocking Valley Fire Clay Company, Nelsonville, O.
Aztec—Acme Pressed Brick Company, Fort Worth, Texas.
Belden—The Belden Brick Company, Canton, Ohio.
Big Four Block—The Big Four Clay Company, Canton, Ohio.
Black Glazed Mission—American Fire Bk. Co., Spokane, Wash.
Bokhara—Hydraulic-Pressed Brick Company, St. Louis, Mo.
Bossage—Hanover Red Pressed Brick Company, Newark, O.
Bradford Pressed Brick—Bradford Pres'd Bk. Co., Bradford, Pa.
Bradford Red—Bradford Pressed Brick Company, Bradford, Pa.
Bradford Ruffs—Bradford Pressed Brick Co., Bradford, Pa.
Bronze Mission—American Fire Brick Co., Spokane, Wash.
Buckskin Pavers—Barber Asphalt Pav. Co., Des Moines, Ia.
Caledonian—Fiske & Company, Inc., Boston and New York.
Car-Bex—London Pressed Brick & Tile Co., Ltd., London, Ont.
Carlyle Block—Carlyle Paving Brick Company, Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chocolate Special—Midland Brick Company, Peru, Kan.
Claycraft—Claycraft Brick Co., Columbus, O.
Claycraft Colonial Reds—Claycraft Brick Co., Columbus, O.
Claycraft Corduroys—Claycraft Brick Co., Columbus, O.
Claycraft Mingled Shades—Claycraft Brick Co., Columbus, O.
Claycraft Velours—Claycraft Brick Co., Columbus, O.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Company, Danville, Ill.
Colonial Reds—Belden Brick Company, Canton, O.
Colonial Reds—Crawfordsville Shale B. Co., Crawfordsville, Ind.
Colonial Swells—W. & J. Post, Glen Head, Long Island, N. Y.
Colonial 12" Mission—American Fire Bk. Co., Spokane, Wash.
Con-Tex—Continental Brick Co., Aledo, Ill.
Coruga—The Colonial Pressed Brick Company, Mogadore, O.
Corsweve—Thomas Moulding Brick Company, Chicago, Ill.
Coshocton—Coshocton Brick Company, Coshocton, O.
Craftsman—Pearl Clay Products Company, Bradford, Pa.
Cravenette—Standard Brick Company, Macon, Ga.
Crucial—Crucial Fire Brick Company, Rome, Ga.
Davenport—Davenport Brick & Tile Co., Davenport, Ia.
Denison—Mason City Brick & Tile Co., Mason City, Ia.
Dixie Brick—Sumter Brick Works, Sumter, S. C.
Dubltex—The Everhard Company, Massillon, O.
Dutch—Dubois & Butler Brick Company, Falls Creek, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Western Brick Company, Danville, Ill.
Everlasting—Mason City Brick & Tile Co., Mason City, Ia.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Federal—Federal Clay Products Company, Mineral City, O.
Ginger—Fraser-Myers Company, Dallas, Tex.
Glenboig—Alexander Gibb, Montreal, Que.
Greendales—Hocking Valley Products Co., Columbus, Ohio.
Greendale Red Rugs—Hocking Valley Products Co., Columbus, O.
Greendale Rugs—Hocking Valley Products Co., Columbus, O.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Holland Split—Thomas Moulding Brick Company, Chicago, Ill.
Homespun—Thomas Moulding Brick Company, Chicago, Ill.
Hood's Old English—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Oriental—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hood's Pottery Brick—B. Mifflin Hood Bk. Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press Brick Company, St. Louis, Mo.
Hy-tex—Hydraulic-Press Brick Company, St. Louis, Mo.
Imperial—The Federal Clay Products Co., Mineral City, Ohio.
Imperial—Ludowici-Celadon Co., Chicago, Ill.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Ironclay—Iron Clay Brick Company, Columbus, O.
Ironstone Block—Terre Haute Vit. Bk. Co., Terre Haute, Ind.
Mason City—Mason City Brick & Tile Co., Mason City, Ia.
Medal Block—Deckman-Duty Brick Company, Cleveland, O.
Metropolitan Block—Metropolitan Paving Brick Co., Canton, O.
MBCo—Martinsville Brick Company, Martinsville, Ind.
Mission—McArthur Brick Company, McArthur, O.
Moquette—Beaver Clay Mfg. Co., New Galilee, Pa.
Mosaic—Western Brick Company, Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Company, Buffville, Kan.
Navajo—Puritan Brick Company, Hamden, Pa.
Old Hickory—The Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Company, Syracuse, N. Y.
Old Gold Mission—American Fire Brick Co., Spokane, Wash.
Old Rose Colonial—Marion Brick Works, Marion, Ind.
Olean Block—Sterling Brick Company, Olean, N. Y.
Oriental—Poston Paving Brick Company, Crawfordsville, Ind.
Pearl—Pearl Clay Products Company, Bradford, Pa.
Persian—Acme Brick Company, Cayuga, Ind.
Persian Split—Thomas Moulding Brick Company, Chicago, Ill.
Porter National—The Globe Brick Company, Wellsville, O.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Paving Brick Co., Galesburg, Ill.
Pyrene—Standard Brick Company, Macon, Ga.
Ridgway—Ridgway Brick Company, Ridgway, Pa.
Roman Anti-Fired Process—London Pressed Brick & Tile Co., Ltd., London, Ont.
Ruftex—Thomas Moulding Brick Company, Chicago, Ill.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustique Oriental—Martinsville Brick Co., Martinsville, Ind.
Savage—The Federal Clay Products Co., Mineral City, Ohio.
Shor-Wil—The Shorey-Willis Bk. & Supply Co., Cincinnati, O.
Sparta—The Federal Clay Products Co., Mineral City, Ohio.
Speedway Block—The Alliance Clay Products Co., Alliance, O.
Steel Clay—Straitsville Impervious Bk. Co., New Straitsville, O.
Sun-Tex—The Sun Brick Company, Ltd., Toronto, Ont.
Tapestry—Fiske & Company, Inc., Boston and New York.
Tavern Brick—Metropolitan Paving Brick Co., Canton, O.
Templeton—Hay Walker Brick Company, Pittsburgh, Pa.
Texcit Brick—Geo. W. Camp, Texas City, Ill.
Texcit Tile—Geo. W. Camp, Texas City, Ill.
Textur—Thomas Moulding Brick Company, Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Company, Chicago, Ill.
Tiger Shale—Belden Brick Company, Canton, O.
Toronto—Toronto Fire Clay Company, Toronto, O.
Trafford Reds—Houston Bros. Company, Pittsburgh, Pa.
Turkestan—Beaver Clay Mfg. Company, New Galilee, Pa.
Turkish Rug—American Fire Brick Co., Spokane, Wash.
Velour—Hydraulic-Press Brick Company, St. Louis, Mo.
Velvet—Warren B. Ferris Brick Company, Columbus, O.
West Salem Matts—West Salem (O.) Hollow Brick & Tile Co.

DRAW A LINE through the Eastern Boundary of Indiana, from the Northernmost railway station in Canada to the Gulf of Mexico—

We can serve every point West of that line, competing in PRICE and QUALITY with plants that seem closer to the Delivery Point

We Make Fire Brick and Refractories

MEXICO

BRICK & FIRE CLAY COMPANY
MEXICO, MISSOURI
Chicago Office: 708 Chamber of Commerce

We Can Save You Money, Time and Trouble on Fire Brick

BECAUSE OF

Quality, Price and Service

Freight Rates on all R.R.'s in UNITED STATES and CANADA

A Trial Shipment Will Convince You
WRITE US

ALSEY BRICK & TILE COMPANY
ALSEY, ILLINOIS

Didier-March Company
Perth Amboy, N. J.

High grade FIRE BRICK materials of New Jersey and Pennsylvania fire clays, for all refractory requirements, including coal carbonizing gas benches, water gas linings, checker brick, special boiler brick, tube tile, linings and special shapes for all types of furnaces and kilns using various fuels. Send us your drawings and tell us your troubles.

Our experience is at your disposal.

Sterling Brick Company
OLEAN, N. Y.
Manufacturers

OLEAN BLOCK
Dunn-Wire-Cut-Lug

Made from shale
VITRIFIED

Many are not as good,
A few may be as good,
None Are Better

Merely advertising as the BEST doesn't make it BEST!
"Who Ever Saw Paper Refuse Ink?"

Ironstone Block

Out tested every block tested in competition with it during **1913.**

For Heavy Traffic Streets and Freight Yards

Terre Haute Vitrified Brick Company
Terre Haute, Indiana

CLINTON PAVING BRICK CO.
CLINTON, INDIANA

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

Murphysboro Paving Brick Co.
Manufacturers of

THE CELEBRATED EGYPTIAN PAVING BLOCK

THE BLOCK THAT STANDS THE TEST

Prices and samples furnished upon application

MURPHYSBORO, - ILLINOIS

Alton Brick Company

Makers of High Quality Brick for

Roadways and Permanent Buildings

Repressed and Dunn Wire-Cut-Lug Block.

ALTON, ILLINOIS

CLAYWORKERS

Let the men who use clay products know who and where you are and what you make.

Our Subscription List includes Architects, Municipal Engineers, Contractors and Home Builders. A copy may be found in every Building Material Exchange in America.

Clayworkers, as you know, use clay products other than those made in their own plants. Clayworkers are, in many instances, influential members of City Councils and Boards of Public Improvement. It seems reasonable that they prefer burned clay in any form to competing materials.

Our Reciprocal Clay Products Advertising Section helps Clayworkers help each other.

A Display Advertisement herein is inexpensive and you should investigate it at once.

This will bring your name prominently before a host of men who can benefit you.

And it will also put your name, without any extra charge, in our Classified Index of Clay Products Manufacturers, under as many headings as you make different clay products. This list (see page three) is arranged alphabetically by states and cities.

Men who are alive to selling possibilities in markets you do not reach are anxious to handle your material. They would write you if they knew what you make and where your plant is located. They read the Pink Section.

Bessemer Limestone Company

Manufacturers of

Bessemer Block

Repressed and Dunn Wire-Cut-Lug

YOUNGSTOWN, OHIO

The Alliance Clay Product Company

Manufacturers of the Famous

Speedway Block

Also High-Grade Building
and Face Brick

ALLIANCE - - - - OHIO

The Harris Brick Co.

Manufacturers of

HARRIS PAVERS

Factory:
Zanesville, Ohio

Office:
St. Paul Bldg.
Cincinnati, O.

The United Brick Company

GENERAL OFFICE
GREENSBURG, PA.

WORKS
CONNEAUT, OHIO

Manufacturers of Wire Cut Lug Paving Brick
(DUNN PATENT)

*A High Grade Paving Block for
City Streets and Main Highways*

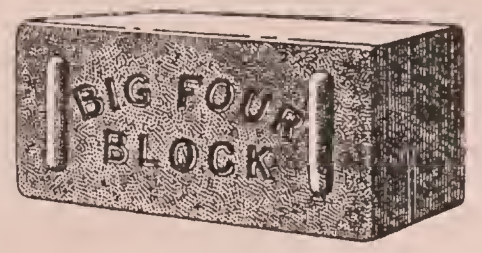
THE DECKMAN-DUTY BRICK CO

CLEVELAND, OHIO.

THE HOME OF MEDAL BLOCK AND THE BEST BRICK PAVED CITY AND COUNTY IN THE WORLD

"Licensee of Dunn Wire-Cut-Lug Block. The *Best* and most suitable form of *Paving Block for Road Way Improvements* in use with the *Cement Grout Filler.*"

A Uniform Block which makes an Ideal Pavement

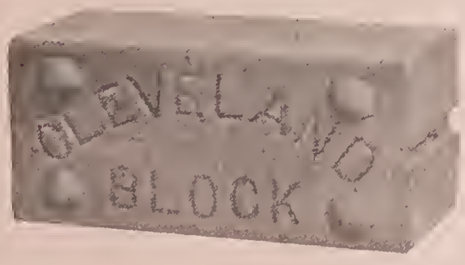


THE BIG FOUR CLAY CO.

City National Bank Bldg. Canton, Ohio

The Cleveland Brick and Clay Co.

MANUFACTURERS OF



1032 Engineers Bldg. Cleveland, Ohio

The Nelsonville Brick Co.

Nelsonville, Ohio

Pioneer
Paving
Block
Manufacturers

Established 1887

SHAWMUT VITRIFIED PAVING BRICK WORKS

SHAWMUT, PA. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay
Paving Bricks and Blocks

Burned in Yates' Patent Kiln

SAMPLES AND PRICES ON APPLICATION

The Danville Brick Company

Manufacturers of

The Unsurpassed Danville Paving Block

DANVILLE, ILL.

LET US QUOTE YOU PRICES

Hocking Valley Brick Co.

Manufacturers of

Hocking Paving Block

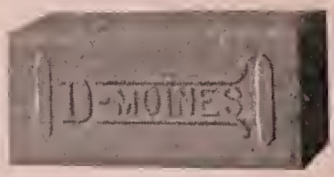
Meets All Tests

Plants Logan, O.
General Office Columbus, O.

Output 15,000,000 Annually

The Barber Asphalt Paving Co.

Manufacturers of the Famous



Des Moines "Buckskin" Pavers

DES MOINES, IOWA

The Carlyle Paving Brick Co.

Manufacturer of

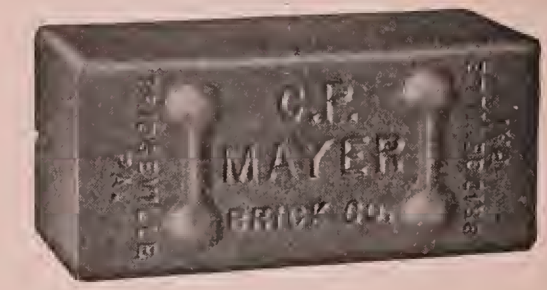
Carlyle Block

Best Testers and Most Durable

Portsmouth, Ohio

C. P. MAYER BRICK CO.

BRIDGEVILLE, PA.



The Mayer Blocks will stand a better abrasion test than the ***Best Paving Blocks made.***

PURINGTON PAVERS

ARE MADE OF

GALESBURG SHALE

The Purington Paving Brick Co.

GALESBURG, ILL.

"Best Paving Block Made"

Daily Capacity 500,000

The Metropolitan Paving Brick Co.
Canton, Ohio

LEHIGH CLAYS
"IOWA'S FINEST"
Fire Clay: Red Clay: Buff Clay: Blue Clay: Silica Rock
Pulverized clay for every purpose as fine as 80 mesh
Building sites for clay working factories for sale
LEHIGH CLAY COMPANY
GENERAL OFFICES: WEBSTER CITY IOWA. CLAY PITS: LEHIGH IOWA

PAVING SIDEWALK
BUILDING FOUNDATION
BRICK AND BLOCK
The Barr Clay Co.
C. C. BARR, Pres.
STREATOR, ILL.

"AMERICAN"
ENAMELED BRICK
All Standard Colors and Sizes. Bright, Medium or Matt Finish. Agents in All Principal Cities.
American Enameled Brick & Tile Co.
Manufacturers of Enameled Brick Exclusively.
Factory South River, N. J. General Office, 1182 Broadway, N. Y.

Algonquin Face Brick
Is one of the best selling lines of rough texture brick on the market. Colors—red, red center, brown, dark and multi-colors, and also mingled shades.
Representation desired in all new territory
THE ALLIANCE BRICK CO.,
P. O. Box A-1 Alliance, Ohio

Bradford Pressed Brick Company
Bradford, Pennsylvania
Sole makers of the famous BRADFORD PRESSED BRICK" (Trade Mark Reg. U. S. Pat. Office) the brick of the DISTINCTIVE RED.
"BRADFORD REDS"—the smooth facing brick. Dry Pressed or Impervious, the former in Standard and Roman sizes. Ornamentals in stock.
"Bradford Ruffs"—a rough textured brick for unusual effects.
Samples sent prepaid on request.
Write for "RED" Catalog.

The Beaver Clay Manufacturing Co.
"THE BEST IN FACING BRICKS"
Smooth and Rough Texture. Specializing in Buffs and Ironspots.
Main Office - NEW GALILEE, PA.

HY-TEX BRICK
Hydraulic-Press Brick Company
ST. LOUIS, MISSOURI
Largest Makers of Face Brick in the World
Branch Offices: Baltimore, Md.; Chicago, Ill.; Cleveland, O.; Davenport, Iowa; Du Bois, Pa; Indianapolis, Ind.; Kansas City, Mo.; Minneapolis, Minn.; New York City; Omaha, Neb.; Philadelphia, Pa.; Toledo, O.; Washington, D.C.; and numerous agencies throughout the United States and Canada

Bonner & Marshall Brick Company

1205-6 Chamber of Commerce Building
Chicago, Ill.

We handle every kind of good facing brick.

(*Exclusive distributors of the famous Oriental Brick*)

Pittsburg Tile Mfg. Co.

MFRS. OF FLOOR TILE
DOMESTIC QUARRIES

Promenade Tile—
Cove Base, Angles, Caps, all sizes.

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CHICAGO

"Who Supplied the Bricks?"

THE QUEISSER-BLISS CO.

DEALERS IN
FACING BRICKS
"Northwestern" Terra Cotta
QUARRIES & BUILDERS' SPECIALTIES

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Schofield Building
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The Alberta Clay Products Co., Limited

Medicine Hat, Alberta, Canada

Western Canada's Largest Clay Products Plant

where we manufacture

High Grade Salt Glazed Vitrified Sewer Pipe
and all fittings and connections. Also Hollow
Block, Denison Interlocking Tile, Wall
Coping, Fireproofing, Drain Tile,
Flue Lining and Brick

Raritan Ridge Clay Co.

METUCHEN, N. J.

Miners and Shippers of

Fire, Terra Cotta and Tile Clays

ALSO

Foundry and Other Fire Sands,
Kiln Setting and Building Sands.

Shipments via Penna. & L. V. R. R.'s
Also L. V. Freight Wharves at Perth Amboy, N. J

Kieselguhr

A light, white, plastic Silica-Alumina. For refractory, insulator and cement purposes.

Silica-Alumina (96% to 99% Pure)

A non-plastic, infusorial rock. The LIGHTEST AND MOST INFUSIBLE material in the world for fire-brick, crucibles, plate glass, etc.

Silica Products Co., Stockton, Calif.
(Quarries at Lompoc, Calif.)

DO YOU **WANT**
An Employee?
A Position?
To Buy Anything?

HAVE YOU **For Sale**
Used Machinery?
Land, Plant, or
Anything Else?

"Brick and Clay Record"
ADVERTISEMENTS Bring Returns.

HOW BROWN PYROMETERS ARE DESIGNED

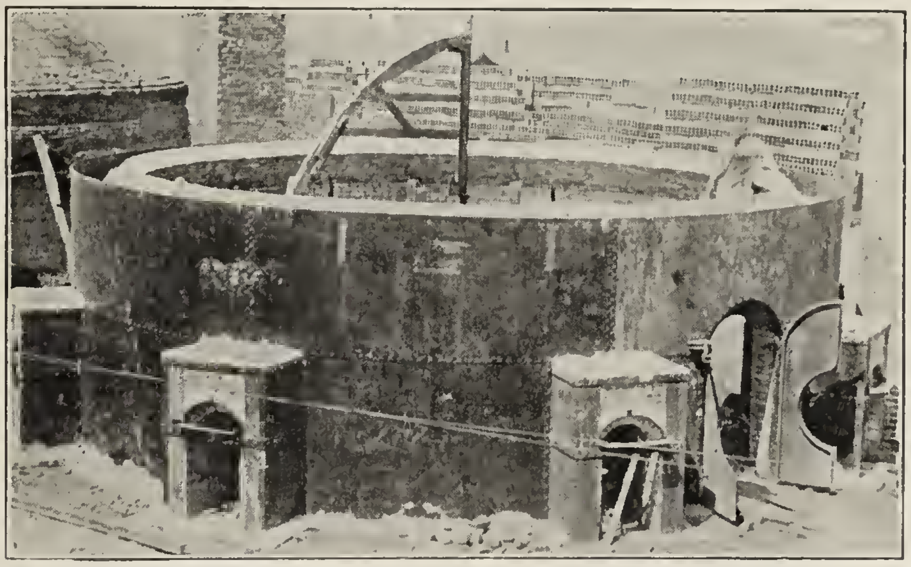
You have heard a lot about the way Brown Pyrometers are making good in controlling kiln temperatures. The first reason for this is the infinite care with which Brown Pyrometers are designed to meet the conditions around brick and tile plants. Other reasons for their success are that Brown Pyrometers are manufactured by first-class instrument makers and by a concern which has made Pyrometers for nearly fifty years, three times as long as any other concern.

Is there any wonder that Brown Pyrometers make good?

THE BROWN INSTRUMENT CO., Philadelphia, Pa. NEW YORK ESTABLISHED 1860 PITTSBURGH CHICAGO

We build any kind of kiln anywhere

Our builders are experts



Type A—Steel Encased Kiln Under Construction

Claude Smith Company

Kiln Builders

417 S. Dearborn St., Chicago, Ill.

Main Drive Belt Efficiency

SAWYER
CANVAS BELTING

An efficient belt does not depend on mere assertions of quality. The quality must be there and in extra quantities for the extra service required.

The reason, Sawyer belts stand up on main drives is because there is strength in every bit of material which goes into them. The duck is extra heavy, every piece is tested for strength. The stitching twine is the heaviest and strongest that can be used to advantage on canvas and the stitching is carefully done so that the needles never break the fabric of the canvas. *There is strength in Sawyer Belts because there is strength in the raw materials.*

Sawyer Belts are especially fitted for main drives in Brick Plants. The strength is there, but there is also the added quality of being able to withstand the action of both grit and moisture conditions nearly always attendant in brick work.

SAWYER BELTING COMPANY, CLEVELAND, O.

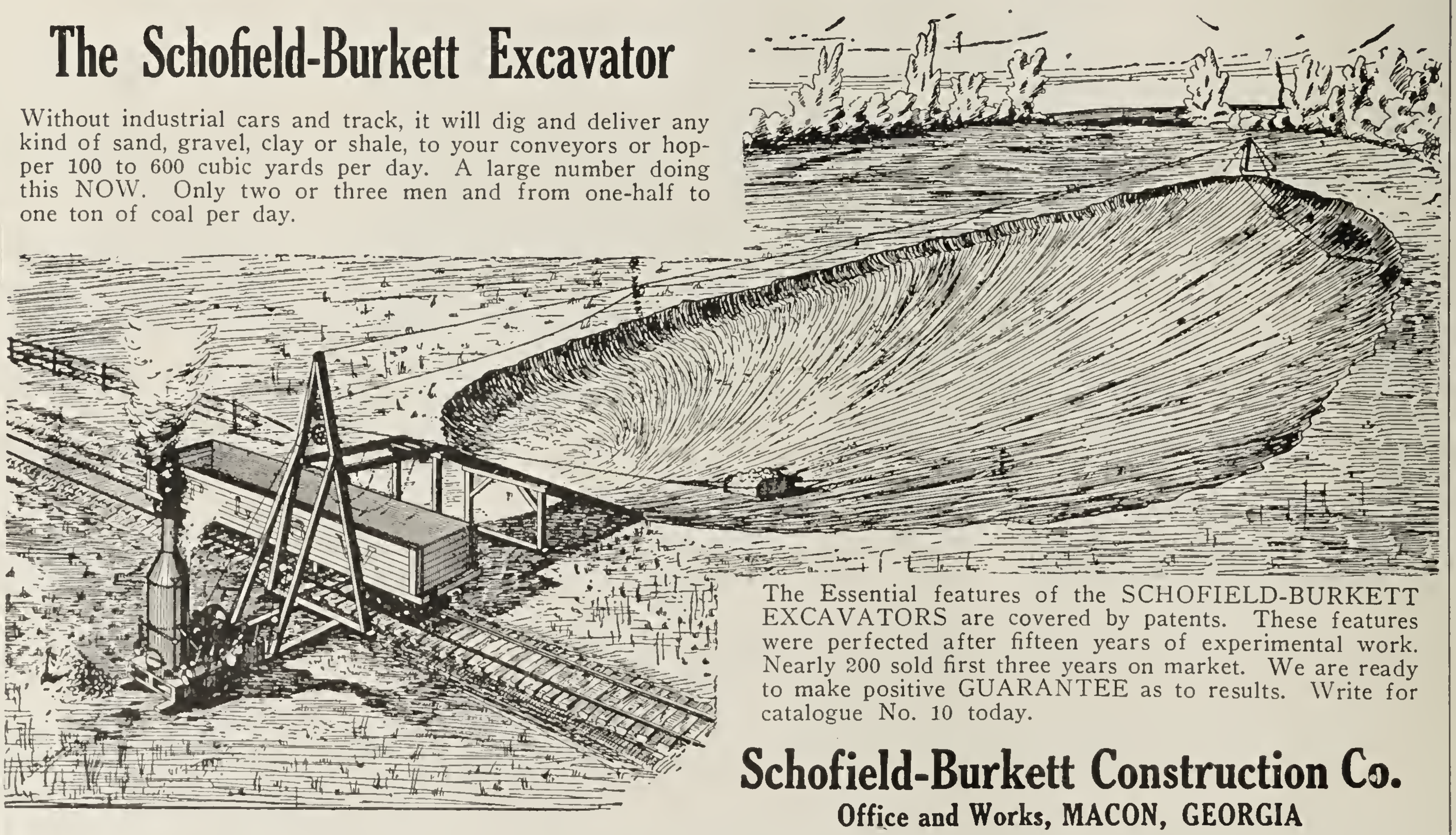
BRANCHES:

Chicago Rubber Co.	Chicago, Ill.
Day Rubber Co.	St. Louis, Mo.
Hubmark Rubber Co.	Milwaukee, Wis.
Iroquois Rubber Co.	Buffalo, N. Y.
Ohio Rubber Co.	Cleveland, O.
Ohio Rubber Co.	Cincinnati, O.
Omaha Rubber Co.	Omaha, Neb.
Pittsburgh Rubber Co.	Pittsburgh, Pa.
Plant Rubber Co.	Minneapolis, Minn.
E. B. Plewes	Winnipeg, Man., Can.
Revere Rubber & Supply Co.	Kansas City, Mo.
U. S. Rubber Co. of Rochester	Rochester
U. S. Rubber Co. of Syracuse	Syracuse
Sawyer Belting Co., 253 Broadway	New York
Mechanical Rubber Co.	Baltimore, Md.
Springfield, Mass.; Detroit, Mich.	
U. S. Rubber Co. of Calif.	Los Angeles
Portland, Ore.; San Francisco, Seattle, Spokane, Tacoma.	

The Simplest and Most Economical Earth Moving Machine on Earth

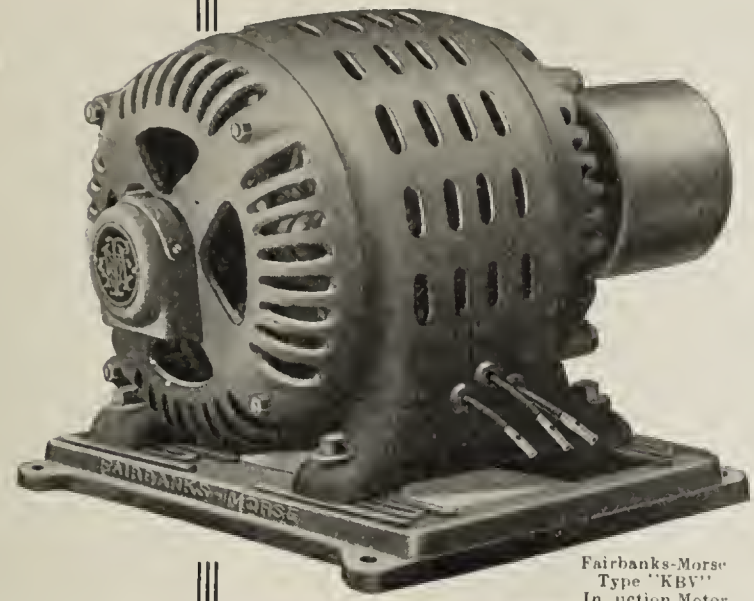
The Schofield-Burkett Excavator

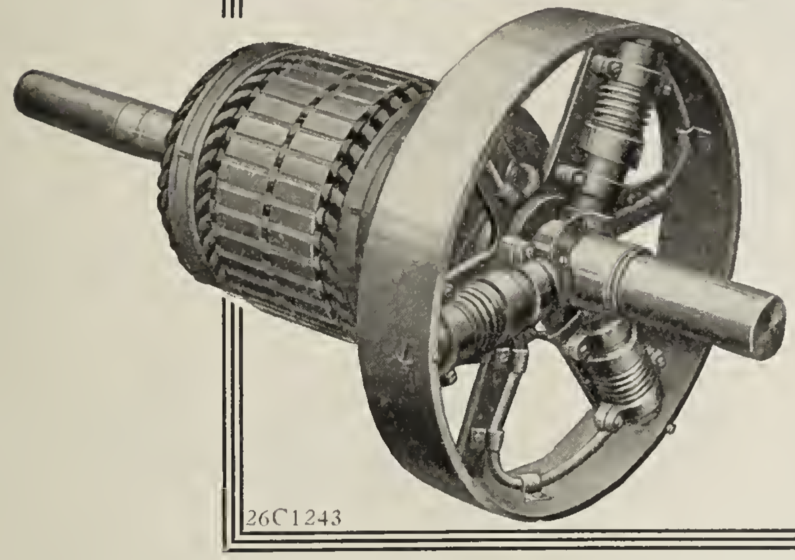
Without industrial cars and track, it will dig and deliver any kind of sand, gravel, clay or shale, to your conveyors or hopper 100 to 600 cubic yards per day. A large number doing this NOW. Only two or three men and from one-half to one ton of coal per day.



The Essential features of the SCHOFIELD-BURKETT EXCAVATORS are covered by patents. These features were perfected after fifteen years of experimental work. Nearly 200 sold first three years on market. We are ready to make positive GUARANTEE as to results. Write for catalogue No. 10 today.

Schofield-Burkett Construction Co.
Office and Works, MACON, GEORGIA


Fairbanks-Morse Type "KBV" Induction Motor



The Motor With a Built-in Starter

The starter of the Fairbanks-Morse Type "KBV" Induction Motor is built in the rotor with a solidity made possible by the absence of practically all moving parts. There is no complicated wiring—no external controller.

Fairbanks-Morse Type "KBV" Internal Starter Induction Motors

start under load without taking excessive current. Starting switch can be put anywhere in the line. Let us tell you more about these motors and their application to clayworking plants.

Write for Particulars

Fairbanks, Morse & Co.
900 S. Wabash Ave., Chicago

26C1243

Saginaw System

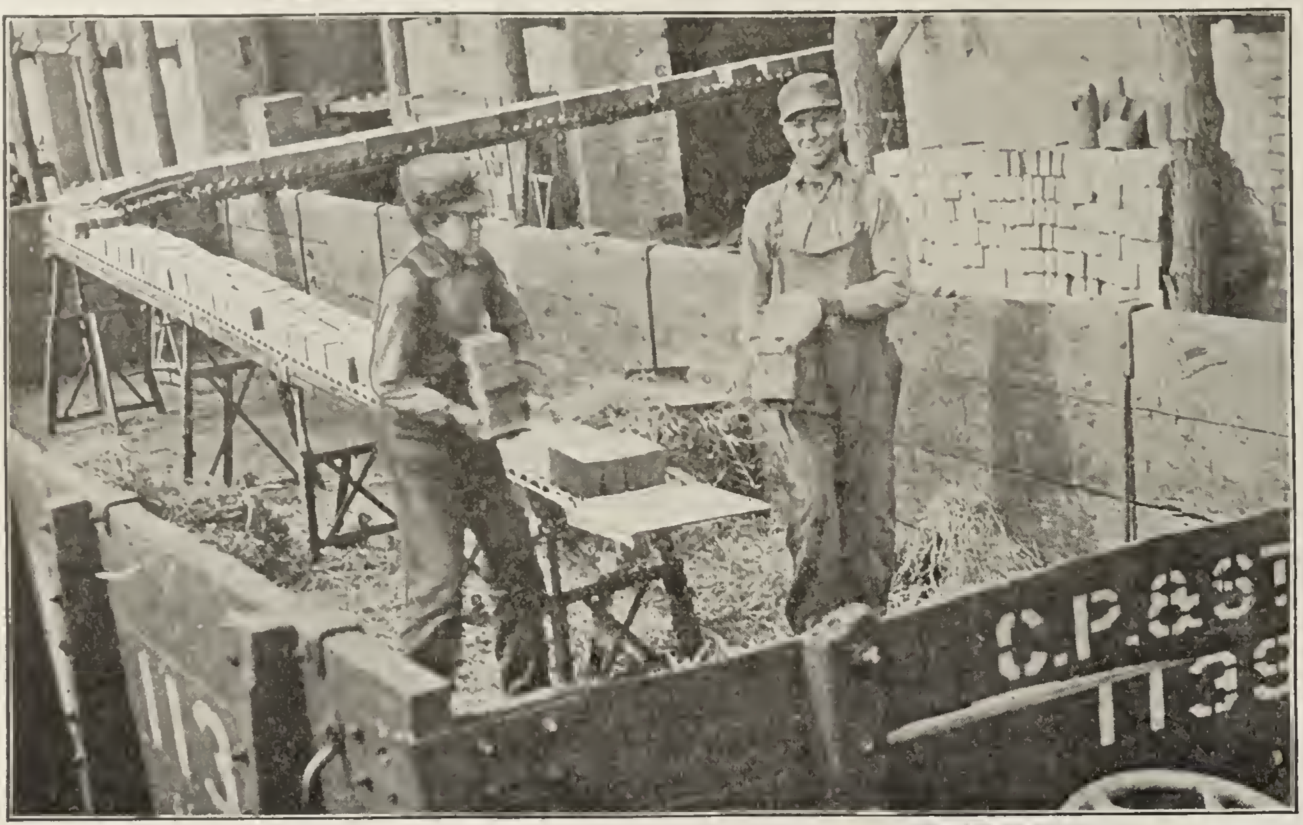
Sand Lime Brick Plants

Contain the least machinery.
Are cheaper in first cost and in upkeep.
Produce the most and the best brick.
Require the least labor.
Are uniformly successful.

We give to each plant and each purchaser the benefit of our twelve years' continuous and successful experience as manufacturers of sand-lime brick and as equippers of plants in all sections of the country.

Jackson and Church Company
Saginaw, Michigan

We own and operate five sand-lime brick factories, one of them since 1902



First aid to Prosperity-Mathews Gravity Brick Conveyor

Now in use by nearly fifty per cent of American Brick Manufacturers.

If you have made up your min dto cut out wheeling your brick by substituting the modern gravity conveyor method, it is important to make up your order early so you can get it for use this year. Our rush is now commencing and accumulated stock will soon be gone.

SPEED-
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

Branch Factories:
TORONTO, ONT.
LONDON, ENG.

Main Office and Factory:
ELLWOOD CITY, PA.

USE THE BUYERS DIRECTORY

when in need of anything. These columns contain much that is of interest to you. Many of our Advertisers make, or sell, more lines than those referred to in their current advertisement so if you use the CLASSIFIED INDEX when looking for dealers you will get all of the information you are seeking.

What Does Your Brick Plant Power Cost?

Comparing coal used per day in an engine with kilowatt hours per day for electric motors there is a saving in favor of the engine drive, but

Add to the cost of the coal your firemen's wages.

More rapid depreciation of engine and boilers as compared with electric motors.

The additional interest on the cost of engines, boilers and line shafts and the cost of maintaining same.

Now which is cheaper? Motors, of course.

Westinghouse motor drive is easily installed.

It is designed so that an ordinary brick plant workman can operate it.

It eliminates power losses due to numerous line shafts and belts.

These are only a few of the many advantages obtained from Westinghouse Electric motor drive.

Write to our nearest office for full information.

Westinghouse Electric & Mfg. Company

Sales Offices in 45 American Cities East Pittsburgh, Pa.

Genasco Expansion Joints

Genasco Joint in place in brick pavement

have all the advantages of other prepared joints for wood-block, brick, granite-block and concrete pavements—economy, ease of installation, the avoiding of melting and pouring—and besides this

Are All Asphalt

The **entire thickness** of a Genasco joint serves the purposes of expansion and contraction. Ready-made joints that contain felt or some other form of re-enforcement cannot do the work of the Genasco all-asphalt joint. Any thickness or depth.

The best way to judge this joint is to see it. A life-sized sample will be sent to any one interested. Write for it today.

The Barber Asphalt Paving Company

Philadelphia, Penna.

Modern Brickmaking

By A. B. SEARLE

440 Pages **260 Illustrations** **$5.00 Post Free**

THE NEWEST AND BEST OF ALL CLAYWORKING BOOKS prepared by a famous authority in clay products manufacture, qualified to give the trade the latest and best information regarding clayworking processes.

A HANDY BOOK FOR THE PRACTICAL MAN

Many clayworking publications are of such a technical and exhaustive character that they are both uninteresting and unsuitable for the use of a business man. In Mr. Searle's book, however, each question is considered in a manner that maintains interest and he gives the reader just the information needed and no more.

THINGS YOU SHOULD KNOW

CONTENTS.—Preface; Chapter I—The Nature and Selection of Clays—Their Special Suitability for Certain Purposes—The Color and Characteristics of Various Bricks—Sand, Breeze, and other Materials used; Chapter II—The General Manufacture of Bricks; Chapter III—Hand Brickmaking Processes; Chapter IV—Plastic Moulding by Machinery—Wire-cut Bricks—Mixers and Feeders—Expression Rolls—Pugmills, Mouthpiece Presses and Auger Machines—Cutting Tables—Repressers—Dryers; Chapter V—The Stiff-Plastic Process; Chapter VI—The Semi-Dry or Semi-Plastic Process; Chapter VII—The Dry or Dust Process; Chapter VIII—Kilns, Setting and Burning; Chapter IX—Vitrified Bricks for Special Work; Chapter X—Firebricks and Blocks; Chapter XI—Glazed Bricks; Chapter XII—Perforated, Radial and Hollow Bricks and Blocks—Fireproof Flooring; Chapter XIII—Moulded and Ornamental Bricks; Chapter XIV—Drying Raw Clay; Chapter XV—Sources of Difficulty and Loss; Index.

"Brick and Clay Record"

445 Plymouth Court, :-: :-: :-: :-: Chicago

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," etc., to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Displayed classified ads in conformity with style prescribed at $3.25 per inch. Cash must accompany all orders.

WANTED—HELP.

WANTED—A capable manager and face brickmaker with a small amount of money to take entire charge of and run a profitable plant and property in Eastern Pennsylvania. Must have unquestionable references. Address: 5-B, care of "Brick and Clay Record." 5-TF

SUPERINTENDENT WANTED—A small thoroughly equipped hollow ware factory. Market for five times present capacity. Want a live experienced hustler to take complete charge. Good town, splendid opportunity. $75.00 paid as a starter. Address: Butler Brick & Tile Company, Butler, Ind. 6-2-1

WANTED—A capable brick and drain tile maker to take charge of a modern plant in Minnesota. Must invest some money for working capital. Address: 6-C., care of "Brick and Clay Record." 6-2-P

WANTED—A foreman for plant making terra cotta and pottery. Must have good general knowledge of clay work and understand glazes. Address: 6 H, care "Brick and Clay Record," Chicago. 6-2-1

WANTED—POSITIONS.

WANTED—Position as manager or superintendent of face brick, paving brick, sewer pipe or hollow ware. Have managed a business of one-half million capitalization. At present employed. Can give first-class references and reasons for desiring a change. Address: 6-BB, care of "Brick and Clay Record." 6-2-1P

WANTED—Position as superintendent or manager of face or mud brick plant; 15 years' experience, understand the business from clay pit to office. Understand burning with coal, oil or gas. Can glaze with salt or mixed glazes. Can furnish best of recommendations. Address: L. D. Oliver, Cherryvale, Kan. 6-2-1

WANTED—Position as superintendent of face, common or paving brick; 15 years' experience, understand the business from clay pit to the finished product; specialized in kilns and burning. Positively can burn without swelling goods. Address: 6-F., care of "Brick and Clay Record."

POSITION WANTED—Brickyard mechanic with ten years' practical experience in the operation and repair of all kinds of brickmaking machinery. Distance not considered. Address: E. H. Blades, Sandstone, Alberta, Canada. 6-2-1P

WANTED—MISCELLANEOUS.

WANTED—All steam users to do without using any kind of compounds or chemicals and still have clean boilers. Write "Otis," No. 390 Norfolk Ave., Buffalo, N. Y.

WANTED—SECOND-HAND MACHINERY.

WANTED TO BUY—One small second-hand granulator, to be in first-class condition. Bissel & Erter, Cecil, Ohio.

WANTED—Good, used, hand operated, standard fire brick cutting table. Address: Ohio Clay Products Company, Salineville, Ohio. 6-2-1P

WANTED—100 dry cars. Double deckers preferred. Address: Norman Clay Tile Company, Nevada, Mo. 6-2-1

SPECIAL OPENINGS.

CAPITAL—Paving and face brick plant, built three years ago, needs more capital, and thorough brick man to run it. Exceptionally fine shale, cheap fuel, profitable market and no union labor to contend with. Address: 5-BD, care of "Brick and Clay Record." 5-2TF

FOR SALE—CLAYWORKING PLANTS.

TILE PLANT BARGAIN.

In growing Northern Ohio town, 3 railroads, 2 banks, 40 miles from Cleveland: for sale—10 acres clay land fronting on street and railroad; heavy frame 3-story building, 28x120 ft.; 2 round kilns, 22 ft. diameter; tile machine; pug mill; crusher, etc., new 1906, by Fate Company. In good condition to operate; fine local market, good labor supply. Would cost $6,000 to duplicate. Will take less than tax value of $3,800 for next five days. Fine chance to manufacture or sell out at big profit. O. C. Saum, owner, 1326 Williamson Bldg., Cleveland, O. 6-2-1P

BRICK AND TILE YARD FOR SALE.

Having made up our mind to retire from the tile business, we will offer at a rare rare bargain the following: 53 acres of land; 2 tile machines; 2 tile kilns, down draft; 2 good big tile sheds; 1 larger brick shed; good frame house and barn; electric power, $2.00 to $3.00 per day cheaper than steam. Can get all wood wanted at $1.50 per cord delivered on the yard; coal $2.50 per ton. Can sell more tile than we can manufacture at the following prices: 3 in., $12.00; 4 in., $17.00; 5 in., $15.00; 6 in., $35.00; 8 in., $50.00; brick, $8.00 per M. Two miles from a well known Southern Michigan city. Will take part cash and balance on terms. Write for particulars. Address, 6-BC, care Brick and Clay Record.

TO CLOSE AN ESTATE—Owing to the death of one of the larger owners of the brick and tile plant of Clippert, Spaulding & Co. of Lansing, Mich., the business is offered for sale in part or as a whole; business well established on paying basis—no debts or other obligations; only plant in growing city of over 40,000; further development of business to meet local and nearby demands, almost unlimited. Surviving owners prefer retaining holdings if satisfactory arrangements made. Address all inquiries to: C. D. Woodbury, Secretary-Treasurer, Lansing, Mich. 2-2-TF

FOR SALE—Working half interest in common brick plant in southern city that has just had a big fire. A mountain of clay, downdraft kilns, waste heat dryer, modern machinery. Brick selling $9.00. Purchaser to have entire charge of plant. Easy terms. Best of reasons for selling. Address: 6-BA, care of "Brick and Clay Record." 6-2-2P

ESTEVAN, SASK.—Splendid opening for brick, tile, hollow-ware and sewer-pipe; richest deposits of clay in the Dominion; cheap light, pure water; coal for burning found in the same hole; excellent railway facilities; unlimited markets. Wire: Commissioner Cameron, Board of Trade, Estevan, Sask. 2-2TF

FOR SALE—British Columbia, Canada. Thoroughly modern stiff-mud brick plant, including excellent 50-acre shale deposit. On tidewater, near Vancouver. A-1 market. For particulars address: W. S. Buttar, 626 Pender St., West Vancouver, B. C. 1-2TF

FOR SALE—Drain Tile and Hollow Ware Factory, including 30 h. p. boiler, 30 h. p. engine, American Clay disintegrator, Brewer auger, Bensing cutter, Brewer cutter, clay elevator and all necessary equipment and tools. Plenty of water and clay. Two story galvanized roof building. Sale for entire output. Owner retired. Price $2,500; worth $6.000. Address Charles W. Key, Evansport, Ohio. 6-2-1

FOR SALE—All or controlling interest in a small brick plant with an old and established trade, buff and red shale; coal or natural gas for fuel. Can make tile or brick. Located at Kittanning, Pa., on P. R. R., 45 miles from Pittsburgh. Will take 500,000 brick as part payment. Address No. 200 South Grant Ave., Kittanning, Pa. 6-2-2P

A RARE CHANCE—I offer for sale a paving and building brick plant in central Pennsylvania, making a brick second to none, with limitless shale. This can be bought outright, or a controlling interest to a practical brick man. A. L. Little, Bedford, Pa. 6-2

TILE PLANT FOR SALE—Engine, boilers, tile machines, sewer pipe press for large tile, steam pipe. Send for our inventory. Remember, plant is for sale in whole or part. Everything No. 1. Edgar M. Heafer & Co., Bloomington, Ill. 2-TF

BRICK YARD FOR SALE—Or controlling interest, at a bargain to a practical brick man. Ideal location in growing Texas town, with three railroads, all leading to nearby large cities. Address: Box 67, Giddings, Texas. 6-2-1P

FOR SALE—Brick plant now in operation and in first-class condition. Daily capacity 46,000 red sand-mold brick; good market for product. Will sell all or part interest to practical brick man that will take full charge. Barron Red Pressed Brick Co., Barron, Wis. 6-2-P

FOR SALE—A modern brick and drain tile plant in Minnesota. For particulars address: 6-D., care of "Brick and Clay Record." 6-2-P

FOR SALE—Brick plant in operation. Fifty thousand machine capacity. Good clay—good demand. Address: W. C. W. Cawthon, Andalusia, Ala. 6-2-4P

TILE PLANT FOR SALE—Complete plant, 30 acres of clay lands, residence and barn. Sale for entire output. Owner retired. Address: W. M. Denman, West Unity, Ohio. 6-2-1P

FOR SALE CHEAP—Soft mud brick plant complete, including pallets and all necessary up to date utensils for making brick cheaply. Address: W. A. Dodds, Hickman, Ky. 6-2-4P

Brick and Clay Record Classified Ads Are Result Producers

FOR SALE—SAND LIME PLANTS.

FOR SALE—A complete sand-lime brick factory, capacity 20,000 per day. Will sell as a whole or in part. 125 h.p. engine and boiler; 4-mold Chisholm-Boyd press; Stevenson 9-ft. dry pan; 12 ft. cylinder; full equipment of cars, belting, shafting, etc. Address: Cumberland Brick Co., Cumberland, Md. 5-4

FOR SALE—Cheap. A complete sand-lime brick plant, tube mill, dryer, English rotary press. Will sell as a whole or any part of it. Write: Albert H. Mueckler, Trustee, Manistee, Mich. 5-2-TF

FOR SALE—CLAY LANDS.

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FOR SALE.

BRICK CLAY.

Attention, brick men—Have located within five miles of Atlanta large supply fine brick clay; excellent railroad facilities. This property is splendid location for southern market. Can be bought reasonably, considering actual value. Estate of James E. Lynch, P. O. Box 519, Atlanta, Ga. 4-TF

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FOR SALE—SECOND-HAND MACHINERY.

FOR SALE—Brewer pug mill, bevel gear, eight foot shell, 35,000 capacity. Never used. Address: Charles W. Key, Evansport, Ohio. 6-2-1P

FOR SALE—125 h.p. boiler, 100 h.p. engine, 2 brick machines, pulleys and shafting, all in good condition. J. P. Vogan, Franklin, Pa. 2-2TF

FOR SALE—One Bensing automatic side cut brick table, complete with off-bearing table, used for cutting but one kiln of brick—a bargain; one new Richardson re-press; one 10A Brewer mill, good as new; and one Brewer 10-ft. pug mill in first class condition. Address: Milroy Drain Tile Company, Milroy, Ind. 6-2-1

FOR SALE—One Brewer No. 59 conical roll crusher good as new, $100. 3,000 wooden pine pallets 10x35, in good condition, five cents each. One Eagle soft-mud, horsepower, brick machine, good as new; two trucks and molds, $100. Address: Salveson Brothers, Petersburg, Ill. 2-TF

FOR SALE—One Hercules 5-mold soft-mud machine, capacity 30,000 brick per day. Mold sander, elevator, racks and pallets for seven days' run.

FOR SALE—One Hercules 6-mold soft-mud machine, capacity 35,000 brick per day. Mold sander, elevator, racks and pallets for six days' run. Either outfit above at about what pallets cost. Address: South Memphis Brick Co., Memphis, Tenn. 3-TF.

FOR SALE—One smooth roll crusher in good condition; one small Kells Auger, splendid machine for small output of special shapes, cutter attached; one 25 h. p. C. C. Wormer engine. Address: W. M. Denman, West Unity, Ohio. 6-2-1P

FOR SALE—One Mathews gravity carrier, consisting of 72 ft. of 12-inch carrier, one 90 deg. curve. one No. 0 curve, 11 jacks and one receiving apron. Used five days. Address: The Columbus Contractors Supply Co., Columbus, Ohio. 4-2-2P

FOR SALE—One 40 h. p. Van Wert engine, one Anderson disintegrator; one Fate B auger machine; one eight inch Bensing cutter, one hand power board delivery brick cutter and one twenty foot clay elevator. All in good condition. Address: T. L. Goble, Haviland, Ohio.

FOR SALE—60 h. p. Lane & Bodly engine; 60 h. p. boiler, same make; Freese roll feed auger; two hand cutters, three to five inch and five to twelve inch. Plenty of clay. A real bargain. Address: John M. Roff, Ottawa, Ohio. 6-2-1P

FOR SALE—One second-hand boiler, in fair condition, 60 h. p., and one Bensing automatic tile cutter, in good shape. For particulars address: 6 K, care of "Brick and Clay Record," Chicago. 6-2-1

FOR SALE—One Freese Union No. 1 machine practically new and in first-class condition. New steel cut gears. Cheap for immediate sales. Chippewa Shale Brick Co., Chippewa Lake, Ohio. 6-2-1

FOR SALE—At a great sacrifice, one No. 3 smooth roll crusher, type P, manufactured by the American Clay Machinery Co., Bucyrus, Ohio. Inquire at Detroit Flower Pot Co., Detroit, Mich. 5-2-5

FOR SALE—One Corliss engine, 22x18; two 150 h. p. fire tube boilers, with pumps, heaters and other steam equipment. Address 6-BL, in care of "Brick and Clay Record." 6-2-1

FOR SALE—Practically new: brick and tile machinery, boilers, engine; Standard steam dryer, and cars. Address: W. E. Lyon & Co., Carthage, Ill. 2-2-TF

FOR SALE—30 h. p. Bass boiler, 30 h. p. Chandler & Taylor engine, pumps and piping complete. Changed to electricity. Address: C. P. Klingler, Paulding, Ohio. 6-2-1P

FOR SALE—One 50 h. p. Erie engine. First class condition. No parts missing. Replaced by electric motor. Address: Defiance Clay Products Company, Defiance, Ohio. 6-2-1

FOR SALE—One 4-mold Penfield dry press in good condition. Address: Hydraulic-Press Brick Co., 403 Rialto Bldg., Kansas City, Mo. 3-1tf.

FOR SALE—Five-mold dry press in first-class shape; a big bargain. J. H. Kritenbrink, 28th and V Sts., South Omaha, Neb. 4-2-TF

MISCELLANEOUS.

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STEEL RAILS.
All sections, New and Relaying.
In stock for immediate shipment.
Second-hand rails cut to any length desired for all purposes.
M. K. Frank, Pittsburg, Pa.

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SAND-MOULD BRICK MACHINERY—We are manufacturers of a complete line. Write for our latest catalogue; we can take care of your wants. C. & A. Potts & Company, Indianapolis, Ind. 6-2-1

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Boilers—stationary, firebox and vertical, all sizes, high and low pressure.
Engines—Corliss, automatic, throttling, gas and gasoline.
Generators and Motors—all sizes and kinds, direct connected and belted, A. C. and D. C.
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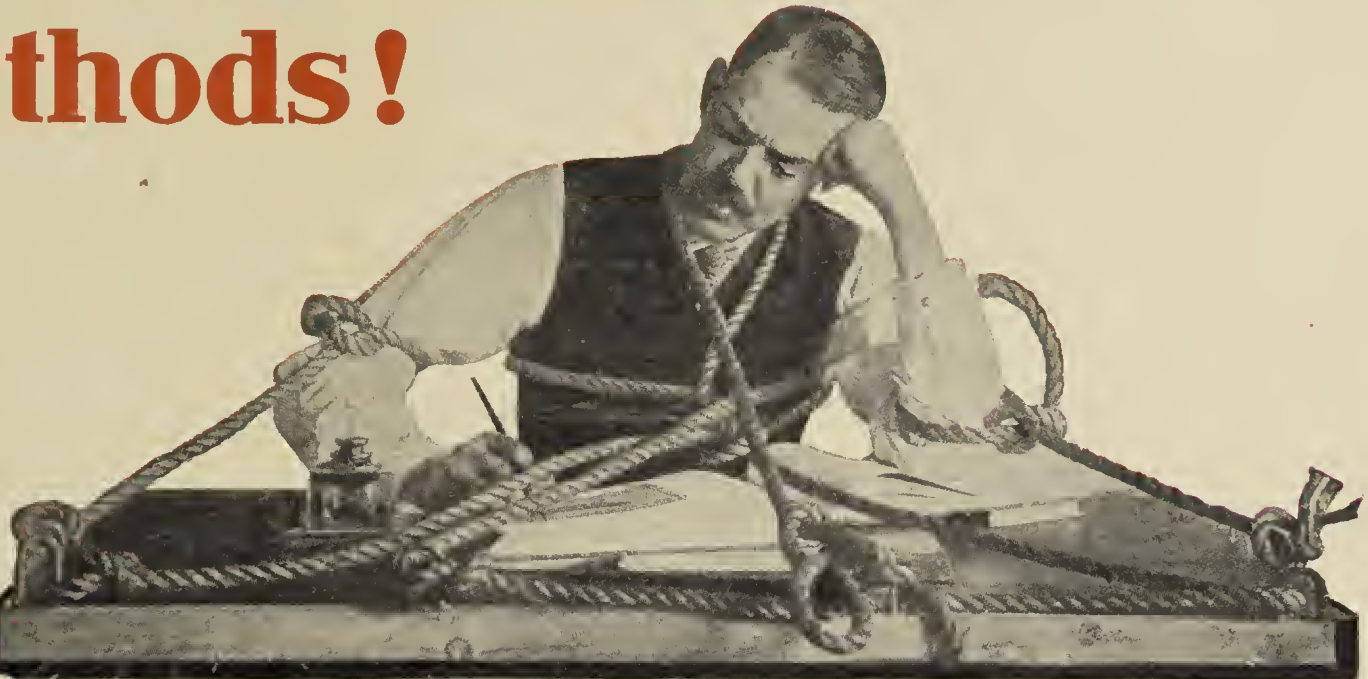

The clayworker is moving along with the rest of the world. The burning system that solved your problems yesterday is obsolete today.

You must get the fullest efficiency—you must turn out a better product, at a lower cost and do it quicker.

UNDERWOOD BURNING (PATENTED) SYSTEM

Revolutionizes Old Methods

It is entirely different from anything ever before attempted. It takes every particle of the energy (heat units) out of coal and uses it. It places this energy where and when it will do the most service in the shortest possible time.

Never before in the history of clayworking has it been possible to get so great value from the heat in the kiln, as the Underwood System does.

Never before has this heat been so uniformly distributed.

Never before has it been possible to control this heat at your will.

Never before has it been possible to eliminate labor to the point that the Underwood Burning System does.

The Underwood Burning System is to the kiln what the wireless is to the telegraph—the airship to the box kite—the electric light to the coal oil lamp.

It places its owner outside of competition—gives him a leverage in price—in quality—in quantity and in the element of time.

We've got a book that tells all about the Underwood System. Suppose you write for a copy today and learn about this Revolution in burning.

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Dayton, Ohio, U. S. A.

The name "TECKTONIUS" stands for "AA1" in KILN CONSTRUCTION and ACCESSORIES

Every "Tecktonius" kiln-appliance marks a distinct advancement and improvement in the clay burning industry—making for greater stability and economy in kiln building and equipment—for unequalled "quality" in kiln burning. Note these "Tecktonius" specialties: Kiln Plans—Wall and Crown Guides—Iron Equipment—Band Fasteners—etc.; each and all of proven superiority. Information and prices on them will surely interest and profit you. They are free.

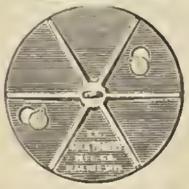
Crown Ventilator

Consists of Iron Ring with Groove, which, when filled with sand, and cover in position, makes Ventilator airtight. Strong, neat and effective. Placed in crown over fire bags. Made in two sizes. 8 inch complete, $1.50; 12 inch complete, $2.00

Crown Guide

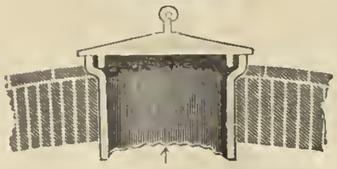
With this Guide, any bricklayer can lay a perfectly true crown by simply following the elevation of the guide. This guide plainly marks every circle of brick from beginning at kiln wall to finished top in center. Strongly made and well finished. All fittings of refined malleable iron. Lasts a lifetime. Adjustable parts will not work loose in turning, or sag, as do all other crown guides. Price $5. Worth double.

Adjustable to raise or lower Brick Rest for any Crown Height



Crown Cover

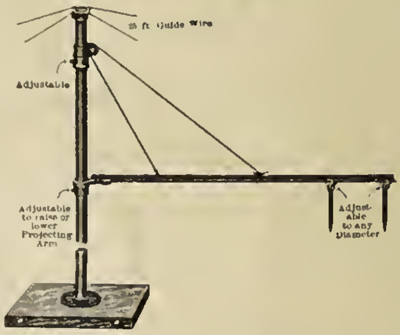
used in connection with Vitrified Sewer Pipe or Tile. Cover heavily ribbed, and provided with two 3 inch Vent Holes with Slide Covers. Vitrified Tile or Pipe is vastly superior, and more lasting, than cast iron ring, on account of standing more heat, hence cheaper and better. Price, without pipe or tile, $4.00.



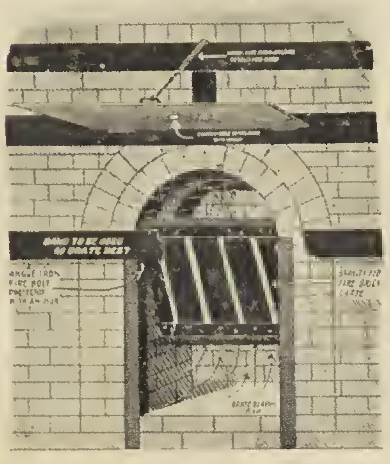
18 in. Sewer Pipe with Bell

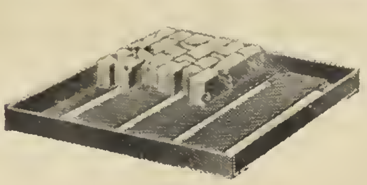
Wall Guide

With this Guide, the wall of any size of round kiln can be made perfectly round, insuring bands having perfectly true smooth bearing, doing away with flat and high parts in kiln wall. Substantially made—all parts being adjustable to any size kiln. Used for marking off circle for trench for foundation, footings, etc., as well as for marking inside and outside of any thickness of wall. Indispensable to every kiln builder—pays for itself on one kiln. Lasts for years. Price, complete, $10.


25 ft. Guide Wire
Adjustable
Adjustable to raise or lower Projecting Arm
Adjustable to any Diameter

"Grateless" Grate Furnace





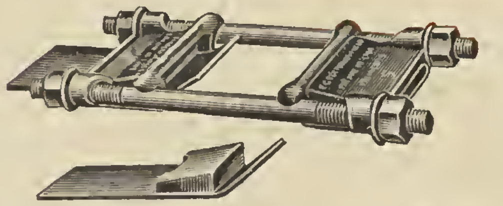
The "last word" in kiln-grate excellence—tremendous improvement over ordinary grate; burns finer and cheaper coal—absolutely without waste. Makes a most effective coking table; creates intense oxidizing heat, without smoke. For flashing purposes, a reducing, smoking fire is produced by closing fire, making it air-tight. Easiest regulated, most economical, firing furnace in existence; also cheapest. Live coal slides down without poking. Permits entry of more air for coking, than any other furnace. Furnace easily installed by ordinary workmen. Also every part easily removable. Insures vastly better, more economical, more dependable results. Give height of fire hole to turn of arch—also width—and we will quote you prices on Grate, Bearing Bars, Railroad Rails, Fire Doors, etc., complete, or any part thereof.

"Tecktonius-Vogt" Patented Kiln

Greatest kiln improvement of the age. Turns out more "A-1" ware in less time, and with less labor and fuel, than any other kiln construction. Initial upward draft, greatly reduces time of watersmoking; eliminates "whitewash" and "efflorescence"; cuts down spoiled ware losses, etc. "Blind-bottom" (patented) insures perfect distribution and control of heat through entire burning, resulting in tremendous savings in time, fuel and labor and 15% to 25% improvement in ware burned. Ordinary round kilns can be profitably improved with this kiln's plans. Full information and prices cheerfully supplied.

THE VOGT PATENT KILN WITH THE TECKTONIUS BAND LUG
DOUBLE STACK

"Tecktonius" Kiln Band Fasteners



are superior in Design, Construction and Service, making them the standard the world over—for strength, durability, ease of application, adjustment and dependability. Made of best malleable iron, rigidly "hammer-tested." Cannot break, wear out, pull off, slip or work loose. Ordinary workman can put on, adjust or remove "Tecktonius" Fasteners, easily and quickly. If you desire the most dependable, most lasting, band fasteners, and other iron equipment, you will specify the "Tecktonius." Booklet, prices and full information supplied without cost or obligation.

"Tecktonius" Silo Fasteners

give to cement block silo construction the solidity and permanence of steel. Used by cement block silo manufacturers everywhere. Investigate and be convinced.

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Also Other Kiln Iron-Equipment

We carry complete stocks of material and finished equipment. Our facilities for fabricating all iron equipment for round kilns—unexcelled. Only concern in country furnishing blank, or completely fabricated, **Genuine Iron Bands and Plates.** These bands conform closer to kiln—are more flexible—easier applied—more serviceable in every way—than steel bands. We carry large stocks of following sizes of **Genuine Iron:**

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6x1/4 "
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Order direct from us, as Genuine Iron Bands and Plates cannot be obtained locally, or through jobbers. Our prices are based upon the completed bands; actual weight, only, regardless of length of the material cut from. Fabricated bands cut to exact length, drilled in steel bush jig, and lapped ready for riveting; rivets supplied. If you buy material and make bands yourself, you pay for unused material; hence we save you money. Let us show you, it will pay you all around to use our Genuine Iron Bands and other equipment. We furnish every part of the kiln equipment, completely fabricated or blank, such as Angle Iron, Door Frames, Span Rods, Dampers, and various accessories given above. Give us your requirements, and get our prices. Order our superior kiln equipment, and profit directly and permanently.

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